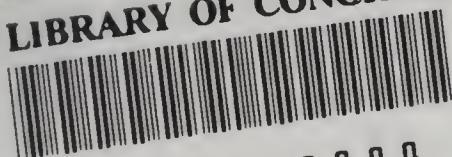


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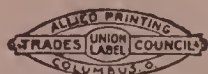
OHIO

**Department of Work=
shops, Factories and
Public Buildings.**

**Illustrated Pamphlet Con=
taining Cuts of Practical
Devices for Guarding
Dangerous Machinery, Etc.**

**The Laws Governing
Factory and
Building Inspection**

Columbus, Ohio, September 25, 1902



ILLUSTRATED PAMPHLET

CONTAINING CUTS OF PRACTICAL DEVICES
FOR GUARDING DANGEROUS MACHINERY,
ETC., AND LAWS GOVERNING FACTORY *
AND BUILDING INSPECTION. * * * * *

PREPARED BY DEPARTMENT OF WORKSHOPS AND FACTORIES.

This pamphlet, containing a number of illustrations showing practical methods of guarding dangerous machinery, etc., has been compiled for the use and guidance of manufacturers and others owning and operating machinery, as well as for the benefit of employes who are engaged in operating same, and perhaps a few hints and instructions would not be out of place as a preface.

So long as dangerous machinery is used and laborious occupations are necessary, which will be to the end of time, just so long will we have occupations which are more or less hazardous, and we would meet with as much success in trying to move the pyramids of Egypt as to try to change this condition of affairs. Accidents will occur and from various causes. Many can be attributed to carelessness on the part of the employe, from removing temporarily, for repairing machinery or for some other cause, guards or protection which have been ordered placed on or around the machine at which employed, and failing to replace same before using the machine again; others to the use of such machinery as can not be guarded, from the fact of destroying the utility of the machine; then those that occur from the want of a more zealous disposition on the part of the employer to see that the employe keeps constantly in use such guards as may have been placed for his protection; and again those that occur through pure carelessness on the part of the injured, who would make it possible to meet with accident no matter how well guarded the piece of machinery at which employed. It is possible, however, to lessen the dangers of the various hazardous occupations, and to reduce to a minimum accidents under certain restraining regulations, which should exist in every manufacturing establishment, by strict adherence thereto by those therein employed.

There are dangers to life other than that of being employed at dangerous machinery, such as dust-creating machinery used in wood-working establishments and plants where emery and polishing wheels are used,

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241

both of which should be equipped with such exhaust systems as would carry away all dust arising from the use of such machinery or wheel. Fumes and gases arising from pickling iron produce, manufacturing of chemicals, rubber factories, wherein certain substances are used for the production of an article, which is deleterious to the human system; match factories; porcelain manufacturing establishments, particularly the enameling department; brush factories, and many other similar places could be mentioned; all such plants should be supplied with the most modern scientific system of ventilation, such as would completely change the entire atmosphere in such rooms or factories every six to ten minutes. Manufacturers should arrange for the physical welfare of their employes to prevent disease as well as to protect them from the hazards arising from dangerous machinery. They should evince a regard for the safety of their people and be willing at all times to devise means for their protection outside of the requirements of the law, and make such provisions as do not come under the jurisdiction of the Inspector, for the protection of those engaged in their factories. The manufacturer should not await the coming of the Inspector to order such changes and improvements as may be necessary for the protection of his employes, or for the placing of his factory in a good sanitary condition, but should proceed to do so at his own volition.

While particular care has been taken to caution the manufacturer in relation to guarding all dangerous machinery, and to protect the health, life and limb of his employes, we wish also to call the attention of the employe to his duty to his employer as to preserving and using such protection as is provided for his benefit. He should show due appreciation for the effort made by his employer in the expenditure of large sums of money to provide exhaust systems to prevent the deleterious effects produced by dust upon his system, and instead of willfully destroying hoods, pipe connections, etc., which, through his imagination, or from a nervous or passionate disposition, seemed to prevent him from performing his work in a certain way, he should use every effort to preserve the usefulness of the system as installed. The employer is not always at fault for not providing proper safeguards for the protection of his employes. Very often many hundreds of dollars are expended by him for this purpose, and proper protection installed and placed in good working order, but made useless in a very short period by the employe for some trivial excuse, and when the Inspector appears and orders the protection renewed or repaired and placed in good working order, perhaps through the complaint of some one of the employes of the plant, he is informed by the employer that the protection was removed or destroyed by the employe. Why should the Inspector be so zealous in endeavoring to enforce the laws enacted for the purpose of protecting the employe, if he has no disposition to aid in maintaining and perpetuating that protection given him? The employe should bear in mind that with his assistance in

this direction his interests are best subserved, and friction between this Department and the employer avoided.

Elevator openings on each floor should be guarded by automatic gates or floor doors; persons using elevator should not, for any purpose, be permitted to wedge or prop up gates; unused sides of shaft should be cased in to a height of seven feet at least, either with jointed boards or substantial wire screening; cables, shives, safety catches and all elevator machinery should be examined frequently to see that it is in order; periodical tests of safety catches should be made by suspending the elevator or cage by light rope, and then cutting rope to ascertain whether the safety-catches will work or not, instead of waiting for an accident to prove that they do not; no minor under sixteen years of age should be permitted to operate any elevator.

All belts passing through floors or vertical shafting operating through floors should be cased in to the height of four feet.

All circular and band saws should be guarded, when possible to do so, and employes compelled to use such guards at all times.

Protruding set-screws in collars and couplings on line and counter-shafting should be covered or countersunk.

Set-keys in hubs of fly or other wheels should be cut off flush with the end of shaft or covered with tin casing or other material fitting closely to shaft, forming a smooth surface.

Shafting beneath sewing machine tables and all other shafting operating on or near floors should be covered.

Loose pulleys should be used wherever possible, so as to throw a saw, jointer, shaper or other piece of machinery out of motion when not necessarily in use and employes instructed to throw out of motion such machine when leaving same even temporarily.

Shifters should be used at all times for shifting belts, and no employe should be allowed to shift a belt with his hands or stick; belts should be laced and adjusted when machinery is not in motion.

Shapers and jointers should be guarded and guards kept in use at all times.

All cog-gearings should be completely cased in, casing to be so constructed that it can be easily removed when necessary to repair or oil, which can be made of wood or metal.

All roll feed machinery should be well-guarded by placing strip of metal entire length of roll, strip to be placed as close as possible to roll to prevent operator from getting fingers between rolls while feeding; particularly should this suggestion be observed in laundries and bake-shops.

All fly-wheels of engines and belt-wheels should be enclosed by casing in or placing substantial railing around them, either of wood or gas pipe. The latter preferable and more substantial.

All bearings and other parts of machinery should be oiled and cleaned when not in motion, and no minor under sixteen years of age should be allowed to oil or clean machinery or to sew or assist in sewing belts.

No female employe should be compelled to remain constantly standing at her work when the work at which she is engaged can be performed as well sitting.

No minor under sixteen years of age must be employed to operate machinery which will endanger life and limb.

Stairways in all large factories should be at least four feet wide and placed next to outer walls and be enclosed with nine-inch walls, extending from ground up, or on outside and enclosed with wall; stairway should be well lighted and arranged so as to deliver by means of a doorway at least four feet wide direct to the outside at ground, and all doorways leading to stairways should be so hung as to swing towards the exit, or to swing both ways, and should not be permitted to be kept locked or barred during working hours; treads of stairway should not be less than ten inches wide and risers not more than seven inches high; all stairways should be provided with substantial handrailings solidly anchored in wall or side casing, extending from top to bottom of same. -

Paints, oils or other combustible materials should not be kept under or near stairways.

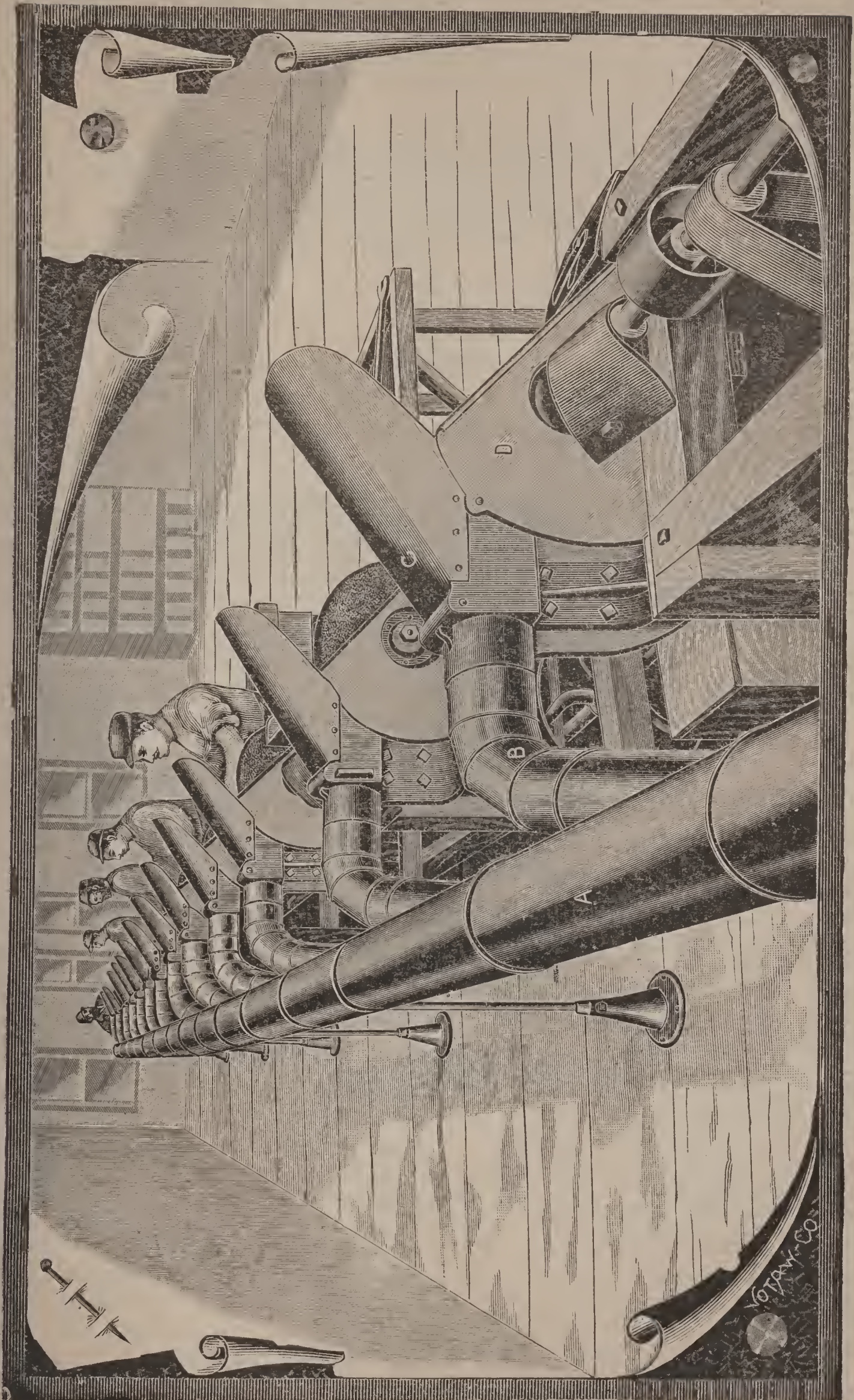
Means for extinguishing fire should be placed on each floor. If factory is located in a town or city having a good water system, standpipes and hose or automatic sprinklers are preferable. If not, then chemical fire extinguishers, such as will produce force and throw a stream when in action, and such as have been approved by the National Board of Fire Underwriters.

Factories located in buildings above the second floor having but one stairway for means of exit, should be provided with a substantial iron fire-escape, balconies not to be less than forty-five inches wide and covering two or more windows at each floor, with a stairway between balconies twenty-one inches wide in the clear, eight-inch rise and eight-inch tread, escape to be placed as remote from elevator shaft and inside stairway as possible.

Nearly if not quite all of the foregoing suggestions are covered by the acts governing factory inspection. Many other useful suggestions might be enumerated, but we will pass to some mechanical illustrations showing practical methods of drawing dust from dust-creating machinery, and devices such as should be used on that which is dangerous, to prevent the loss of life and limb.

EXHAUST SYSTEMS.

An exhaust system for collecting dust resolves itself entirely and simply into a problem of handling air. The first requirement is to decide on the requisite size of fan to be used. This is very important as pro-



CUT No. 1 — EXHAUST SYSTEM.

visions should be made for expansion of business, which means an expansion of pipe service and a fan sufficiently large to perform the work, and unless this provision is made when the system is put in, it will be found when expansion of business does take place that the system is radically defective and can not be remedied without taking out the entire system.

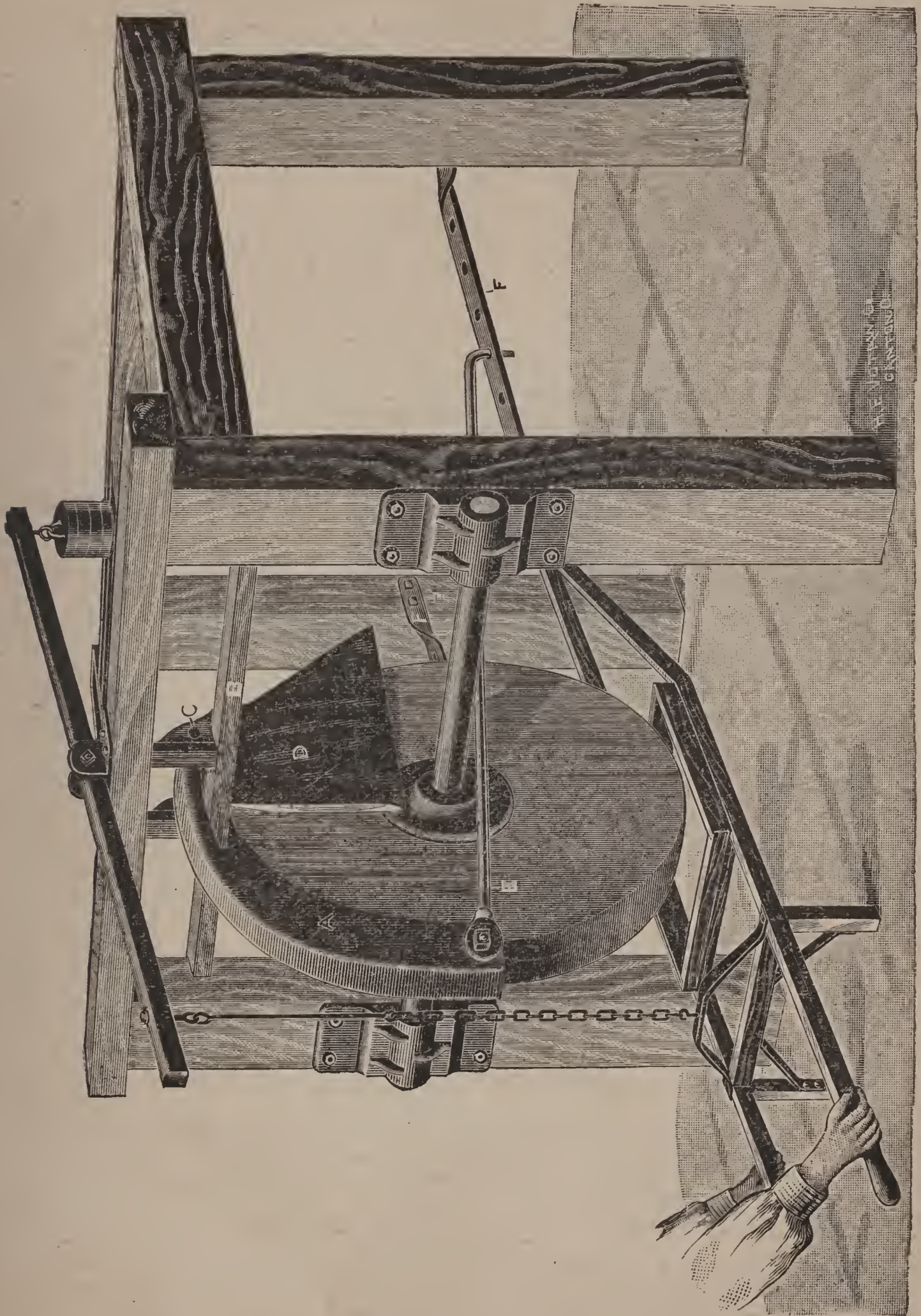
Wood-working as well as metal polishing establishments should be equipped with a practical system for collecting dust and refuse. This would relieve the workmen, insure cleanliness and healthy surroundings, and lessen the dangers of fire. A system for wood-working establishments should be constructed on the same scientific principles as that for removing emery dust, except that the system for wood refuse requires a sharp blast and an excess in the size of pipes to allow for additional friction, but the essential features of all exhaust systems are identical.

Cut No. 1 shows a side and rear view of an exhaust system. The system may vary in so far as to where the main suction pipe is located, whether under the floor, overhead, or as is illustrated in the cut. The most preferable is as illustrated in the cut or under the floor. The main suction pipe A shows clearly the taper, preventing at all times vacuum at any point in the pipe and expanding sufficiently to cover the next wheel when its point of suction is reached. The pipe marked B illustrates the connection from the wheel to the main suction pipe. It will be noticed that the branch pipe enters the main suction pipe on an angle with the suction, thus preventing any interference with the draft. D illustrates the side of the hood and C the top. There can not be an inflexible specification for the hood as the shape of the hood must be controlled entirely by the class of work to be done, but the hood should always fit as closely as possible to the wheel, but not so close as to interfere with its operation. The hood for an overshot wheel should be at the top near the line of the dust thrown by the velocity of the wheel; that for an undershot wheel the connection should be at the bottom.

GRINDSTONES AND EMERY WHEELS.

Persons operating grindstones and emery wheels are not only subject to disease from breathing deleterious dusts, but they are also liable to violent injury from the bursting of the stone. The causes of such accidents are various and uncertain. Great care should be taken in storing grindstones, to keep them free from dampness and protect them from the elements. Many lives have been sacrificed by the bursting of grindstones, caused doubtless by neglect in properly caring for the stones when they were in storage. A grindstone should not be stored with the stone standing upon the ground. It will absorb the moisture from the bottom, keeping one side of the stone soft and green, while the balance of the stone becomes hard and seasoned. The moisture thus absorbed will enter the stone in the shape of a wedge, tapering to a point at the center or bore of the stone. This means the expansion of the

stone on the one side and very often causes it to crack in the opposite corner of the bore from the point of absorption. Frequently has this



CUT No. 2—HOOD FOR GRINDSTONE.

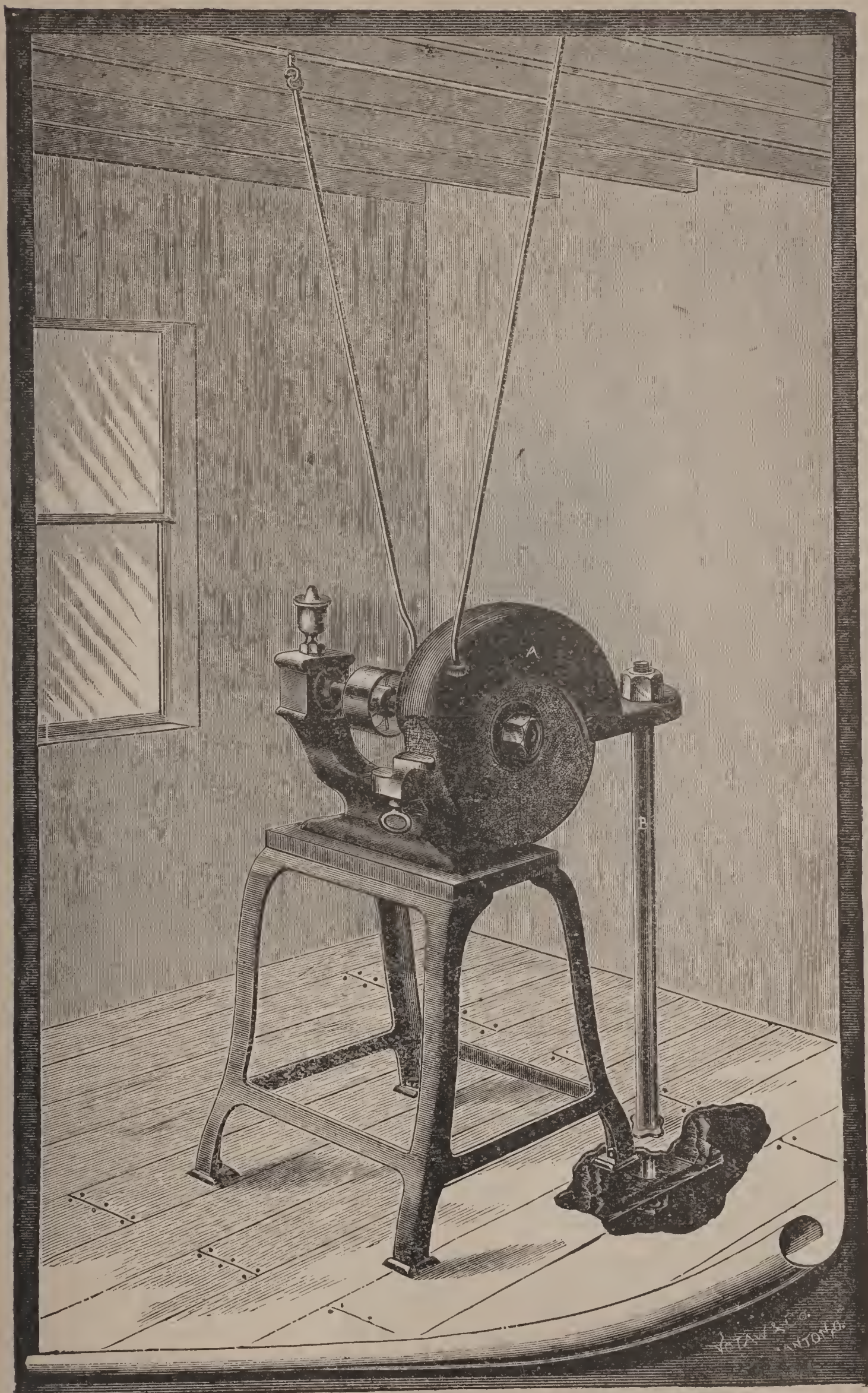
been found to be the case with bursted grindstones, having been mounted and used, the check being undiscovered until the stone bursted. Grindstones should be stored on a raised platform at least six to ten inches

from the ground, which would insure keeping them from absorbing the dampness arising from the earth. Another practice in the use of grindstones, which has been the cause of many accidents from bursting, has been the using of wooden angles and wedges in mounting the stone. This practice should not be indulged in, particularly where the stone is operated wet, from the fact that water and moisture will find its way to the wooden wedges and angle pieces, cause expansion, and in many instances the bursting of the stone, and perhaps the loss of life. Iron angle pieces and wedges are much better than wood, and by the adoption of iron the bursting of grindstones from this cause might be avoided. By using carefully selected stones and great care on the part of the workmen operating them, will prove to be a safeguard and lessen to some extent the possibility of accident from this cause. Though all the precautions above mentioned may be taken, yet the bursting of grindstones will occur and those operating them should be protected in addition to the precautions suggested, in so far as possible, against accident from flying fragments in case of the bursting of a stone. A guard constructed of iron, properly braced, surrounding the stone, leaving only that portion exposed necessary for cutting, will render accident from bursting a very rare thing.

Cut No. 2 illustrates such guard as is mentioned. Its construction is simple, adoption practicable, and where used will reduce the liability of accident from the bursting of grindstones to a minimum.

Hood A is made of heavy forged sheet metal and supported mainly by scantling marked B, which, being horizontal, reaches the general support of vertical pillars of the frame. The scantling is also supported by short scantlings, arranged vertically upon the frame, which bears the pivot C carrying hood A, which allows the hood to swing so as to be adjusted to a stone of any size. Box D catches the water from the revolving stone. Rod E being bolted to both sides of the hood A, with a hook on the opposite end, with the support of the perforated bar F attached, with bolts to the frame, acts as a support, and by removing the hook to the end of the perforated bar F, the frame can be adjusted to any size stone. In case a stone should burst the fragments would lodge against the hood and prevent serious accident. E shows the stone.

The bursting of emery wheels is also of frequent occurrence and often as disastrous as the bursting of grindstones. Many things can be done that will lessen the probability of accident from the bursting of emery wheels, and care should be taken to purchase none but first class wheels and of the highest quality. A stringent inspection should be made of each wheel to detect flaws, if any, and the wheel should be so adjusted on spindles as to not fit too closely. The wheel fitting the spindle too tight is liable to burst from the fact of the spindle becoming heated from friction, thus causing expansion of the spindle and materially adding to the danger of bursting the wheel.



CUT No. 3—HOOD FOR EMERY-WHEEL.

The speed of an emery wheel is also an uncertain matter. One manufacture of wheel will stand a higher speed than another, and the safest rule to follow is that the wheel should be speeded only to such speed as is registered and given by the maker. The maker understands its constituent parts, its durability, and is much better qualified to know at what speed it can be operated with safety than any person not familiar with the wheel. No fixed or flexible schedule can be laid down to regulate the speed of emery wheels for the reason that the speed varies with the construction and quality of the wheel and by whom manufactured. The wheel should always be kept true and in balance and the operator should use the wheel with the rest drawn up as close to it as possible, allowing sufficient clearance to relieve friction. Emery wheels have often been bursted by operating the wheel with the rest so far from it that the work being ground would catch between the revolving wheel and the rest, thus forming a wedge, and the sudden stopping or checking of the wheel will, in many cases, cause it to burst. We believe we are safe in saying that a larger number of wheels have been bursted from this cause than from all other complications put together. Precautionary measures will not always prevent the bursting of grindstones and emery wheels, nor is it always possible or practicable to guard such wheels, but in many instances it can and should be done.

Cut No. 3 illustrates a protection for emery wheels, which is intended to break the force and stop the course of fragments in case of the bursting of a wheel. This device has proven beneficial in diminishing and reducing accidents from this source to a minimum and shows a guard similar in purpose and partially in construction to the illustrated guard for grindstones. The hood which is marked A, can be made of any kind of metal, either heavy boiler plate or cast iron. The front of the guard is supported by two rods, which are fastened by eye-bolts to ceiling joists and then bolted to lugs on the side of hood A. The rear of the hood is supported by rod marked B, which is made of gas pipe with a bolt passing through the center of the pipe, bolted to the lug at the rear of hood and to the floor joists, providing a rigid construction. The nose or front end of hood A is turned under, and in case of the bursting of a wheel the fragments will lodge in the top of the hood, rendering it almost impossible for them to be thrown from under hood in such manner as to injure the operator, as the force of the fragments has been expended against the hood. This guard can not be used where it is necessary to use the top of the wheel, but in hundreds of cases this device can be used and will be found to be a life saver.

WOOD-SHAPERS.

Persons operating wood-working machinery are at all times susceptible to accident, and particularly when operating unguarded, dangerous machinery. To absolutely prevent accident to this class of em-



CUT No. 4—GUARD FOR WOOD-SHAPER.

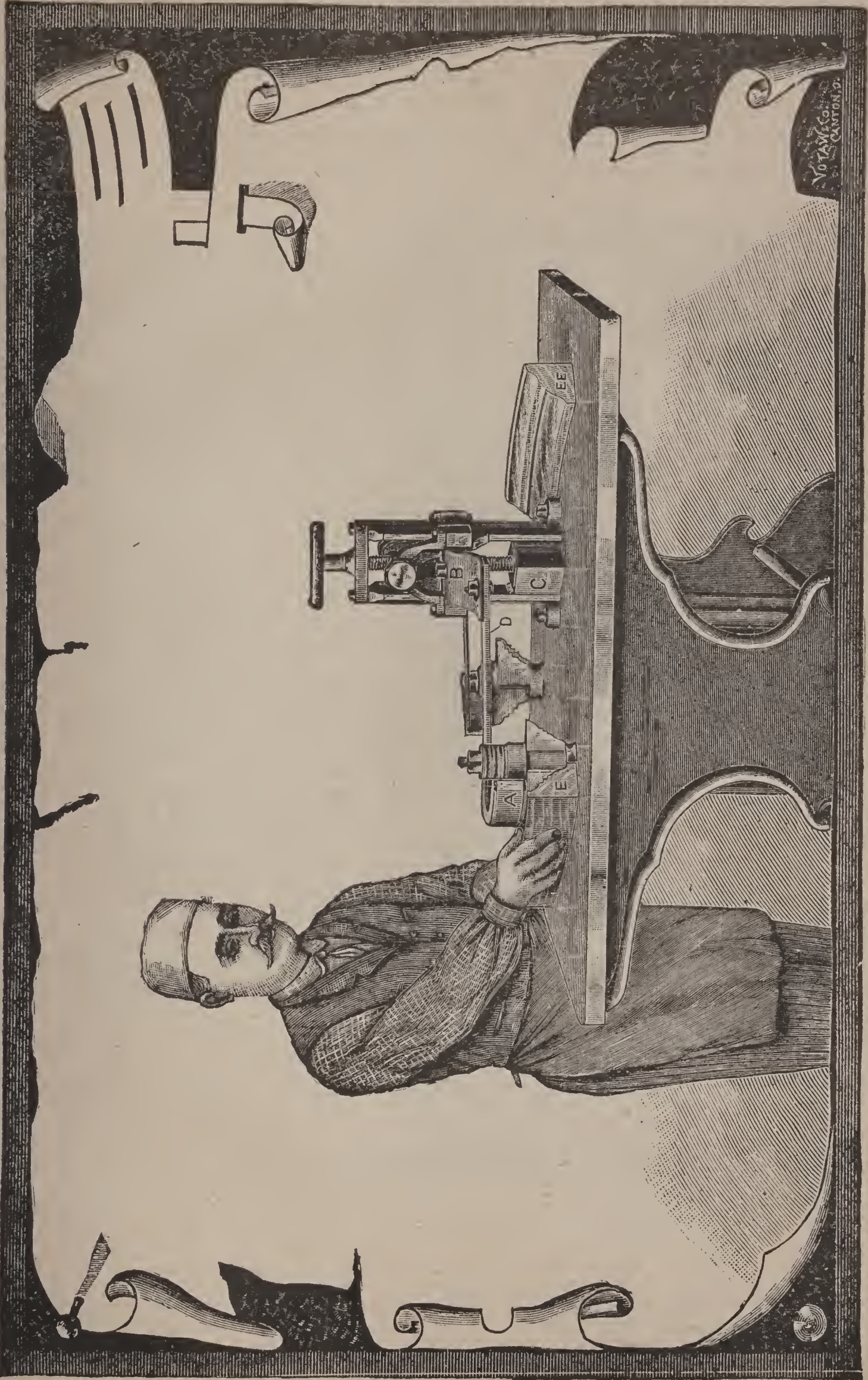
ployes is an impossibility, for the reason that wood-working machinery can not be rendered harmless or absolutely safe, and besides, employes are often careless, which is the cause of the major portion of accidents which occur from the use of dangerous machinery, but wood-working machinery can be made reasonably safe, which is one of the most zealous aims of the Department of Workshops and Factories, to protect the lives and limbs of such employes.

The wood-shaper is, perhaps, one among the most dangerous pieces of wood-working machinery in use, yet this machine can be rendered more than reasonably safe by using shaper-guard, and a wood-shaper should never be operated without such guard. Occasionally we find an operator who has succeeded in operating a wood-shaper for a period of years without meeting misfortune, but where we find one thus favored among the thousands who earn their daily bread from such occupation, we come in contact with hundreds who have lost fingers, some their hands, and we have learned of others who have lost their lives. Various reasons are advanced against the use of such guards, one to the effect that by fastening the guard to the table it interferes with the proper discharge of the duties of the employe. This objection is unfounded, however, from the fact that many large wood-working plants are now using such guards and report to this department that they would not operate their shapers without them.

By referring to cut No. 4 (on which there is no patent, and can be made by any manufacturer without fear of infringement), it will be noticed that it is constructed of a light frame-work built overhead and securely fastened and braced to the ceiling joists above.

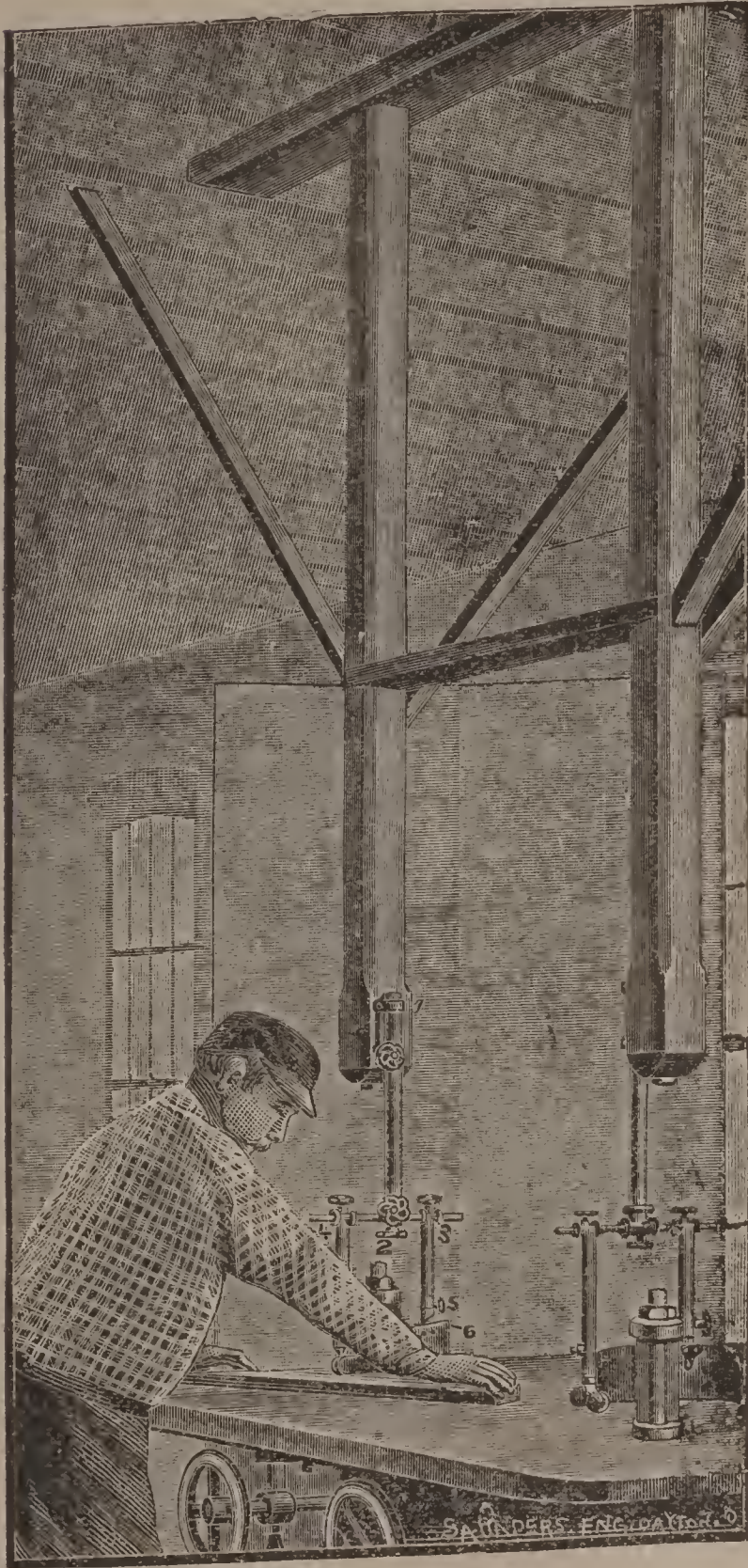
The guard which is marked A is composed of a basket or hood-shaped cylinder, made of bars, encircling the knife-head and knives. The cylinder is securely fastened to a piece of one and one-half inch gas pipe, which passes through the half-hollowed bar, marked C, through an eye-bolt, which, with a washer and thumb-screw, can be adjusted and tightened at any height desired so as to admit the material to be worked. If but one shaper-head is being used in the work, the other can be thrown up out of the way, as shown by B, and in case of shaping the inside of a circle there is no difficulty in raising the guard to place the work on the shaper-bed and then lowering it, protecting the knives while the machine is in motion. This guard is in use by a number of manufacturers and gives satisfaction as a guard. There has not been a single accident reported to this department caused by a shaper where this guard has been adopted and is in use.

There is also a shaper-guard manufactured in Cincinnati and used by many of the large manufacturing establishments of that city, known as Campbell's Safety-guard. This guard is perfect and protects the workman in every particular from being cut with the knives, and at the same time is an improvement over the guard illustrated as No. 4.



CUT No. 5—CAMPBELL'S SAFETY-GUARD FOR WOOD-SHAPER.

Cut No. 5 shows that the frame holding the guard, which is marked by letter C, is bolted to the surface plate or top of table. The piece marked D forms a spring, which has a hood, marked A, fastened to the end, which encircles the spindles and knives. The part marked B is bolted to a nut which adjusts the spring by turning the hand-wheel shown in the cut. The idea of this guard is to protect the operator from getting his hands thrown into the knives by two means: First,



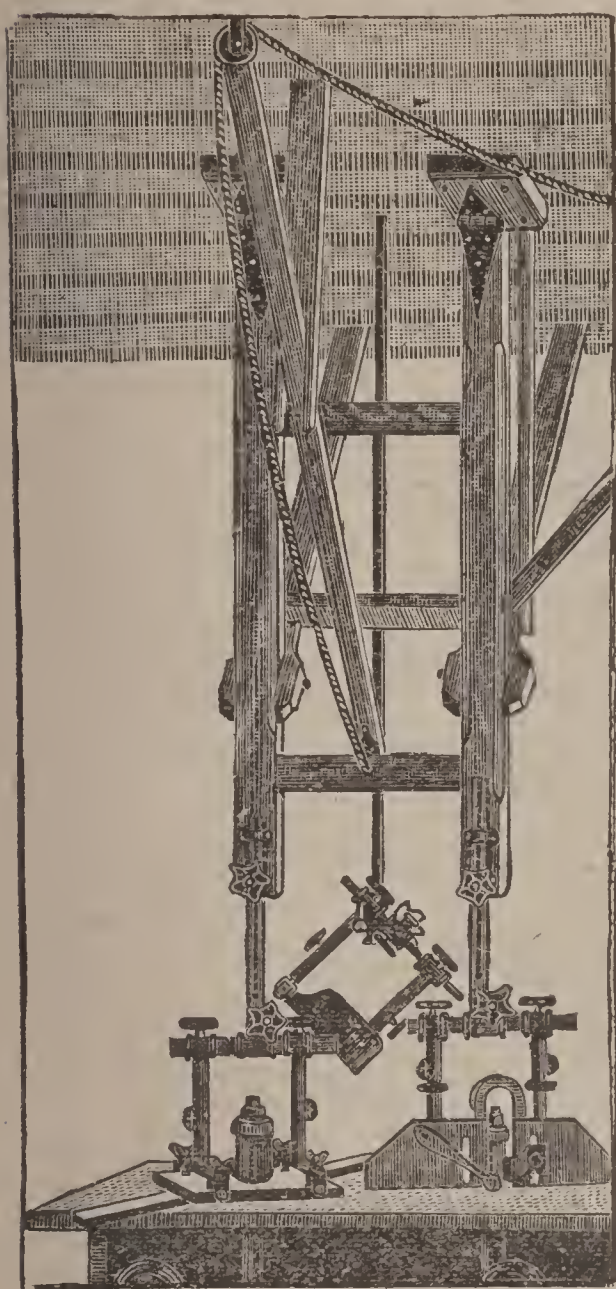
CUT No. 6 — NATIONAL FRIZZER GUARD
IN USE.

by holding the work to the table by pressure from the spring marked A and D, preventing the material being worked from being hurled from the machine, which is most frequently the cause of accident from such machines; and second, by covering the knives. The efficiency of this guard is illustrated by the enormous cut shown on the molding marked E. The molding marked EE, on the top of the table was made in one cut. This guard has met with the highest commendation from those who have it in use as a limb and a labor saver.

Cuts Nos. 6, 7 and 8, illustrate the "National Frizzer Guard," No. 6 showing guard in use, No. 7 showing guard not in use and thrown up above shaper-head, and No. 8 showing frame work thrown up entirely out of the way. This guard is manufactured by Michael Henry, of Dayton, Ohio, who is the patentee. The frame-work

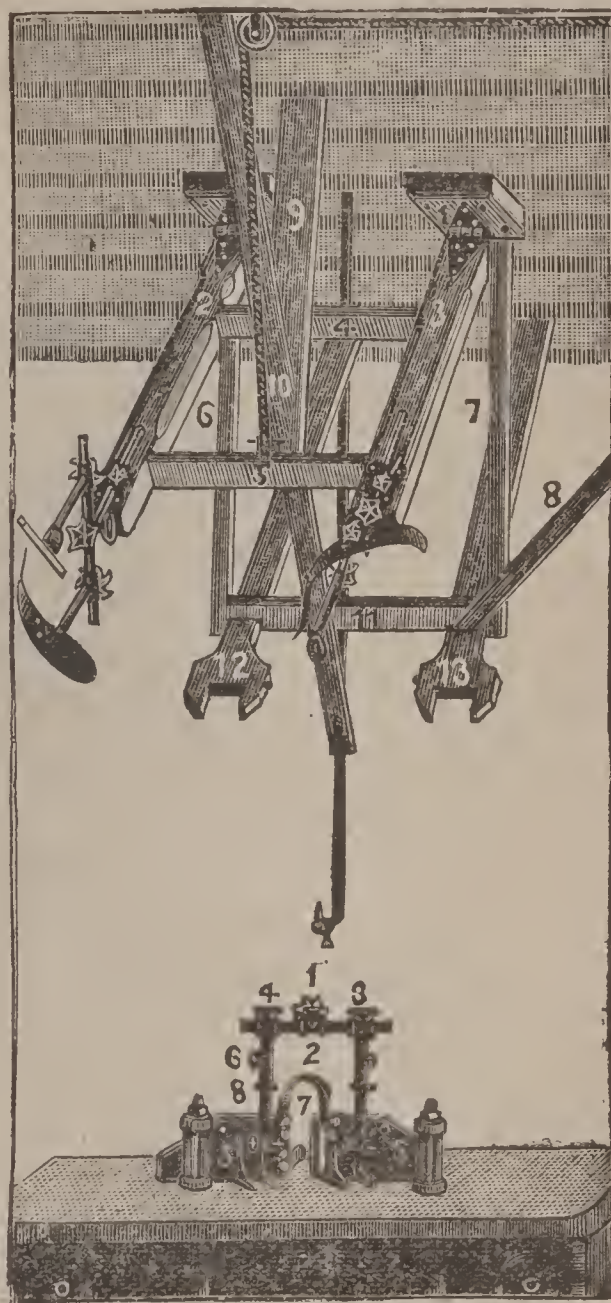
that extends from the ceiling is two feet from the table and is made of material 4 x 4 and framed in the plank that is nailed to the ceiling. The center piece is six inches wide and cut out on each end and nailed on the 4 x 4's. The braces are seven-eighths inch thick and three inches wide. The casting is fastened on the 4 x 4 and the three-fourths inch

rod runs direct over the spindle. To operate this guard loosen the wheel on casting No. 1, raise the guard and the table is clear; set the knives, lay your wood down on the table, bring the guard down on it and fasten the wheel above on casting No. 1, and it is ready for use. If you use a small or large knife, loosen wheel No. 5 and throw the fender in or out to suit the knife. This guard can be adjusted to all classes of work and



CUT No. 7.

NATIONAL FRIZZER GUARD NOT
IN USE AND ABOVE SHAPER-
HEAD.



CUT No. 8.

NATIONAL FRIZZER GUARD, SHOW-
ING FRAME-WORK UP OUT OF
WAY.

saves much valuable time and lumber, and it is almost impossible for the workman to get his hands lacerated by being drawn into the knife-head while this guard is in use.

There are many other shaper-guards manufactured, which give satisfaction, some of them, perhaps, a little crude in their nature. from the fact of being a contrivance of the owner of the machine, who did not care to go to the expense of purchasing a patented device, yet serving the purpose for saving life and limb and not interfering with the utility of the shaper.

WOOD-JOINTERS AND PLANERS.

The wood-jointer is also classed among the most dangerous of wood-working machinery and is found in almost every wood-working establishment in this country. This machine has caused more accidents and maimed more men for life than all other wood-working machinery combined. A careful study of this machine will show that the causes of accident by its use often occur in an unaccountable way; sometimes the cause may be attributed to a change in the grain in the piece of timber being worked, again by suddenly striking a knot, hurling the piece from the machine and throwing the workman's hand into the knives and usually at the side of the piece being worked. Such accidents could readily be prevented by keeping the gauge of the machine set close to the near end of the knives, only exposing a sufficient width of the knives to clear the width of the material being worked. This can be done and is practicable when the shaper-knives are sharp and in good order, but by constantly using them in one place they soon become dull and the gauge is moved over a little farther until more of the knife is exposed more than the width of the material being worked, and in case the workman's hand is thrown from his work a serious accident must surely follow. Though the most dangerous machine used in wood-working establishments, yet it is more simple and easy for which to provide a guard, rendering it reasonably more safe than other machinery of the wood-working class.

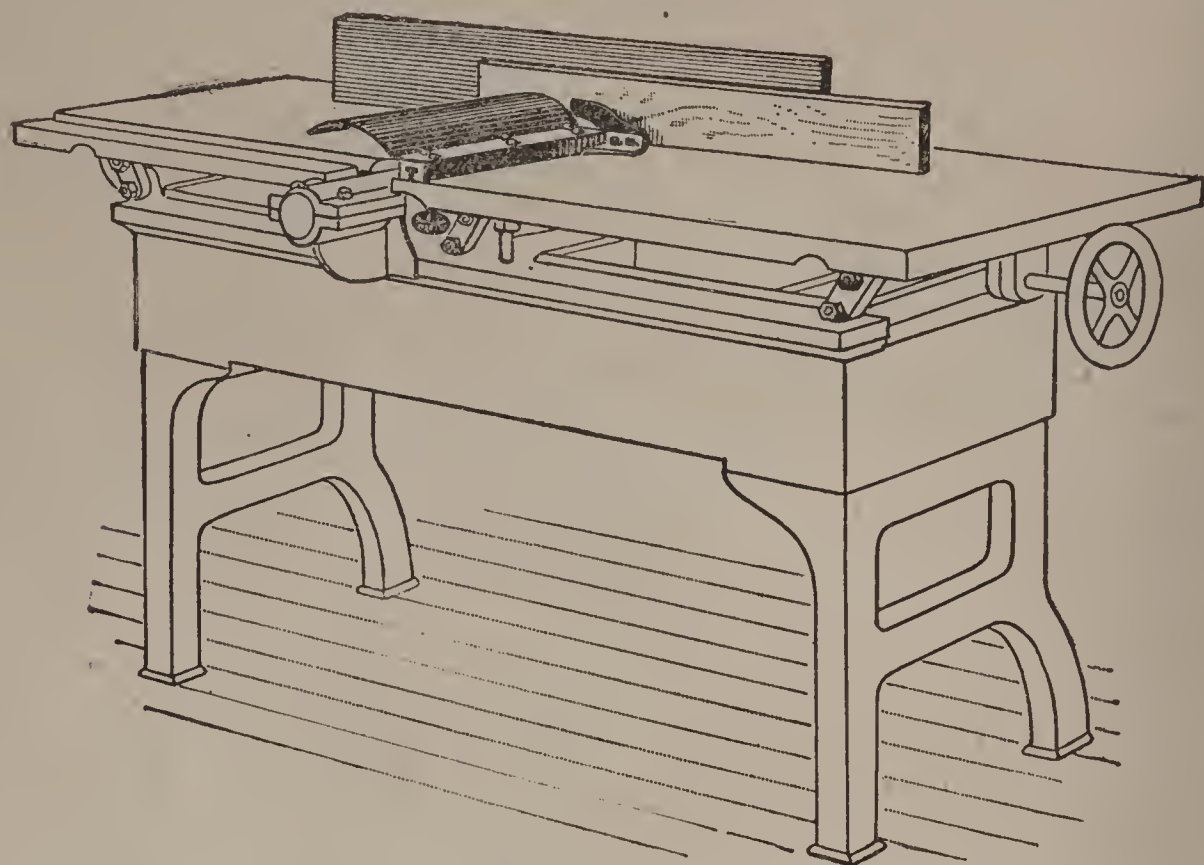
Cut No. 9 shows a cover or guard which is simple in its construction and adjustable to the surface-plate or bed of jointer, covering the unused portion of jointer-knives. This guard consists of a board fastened to the surface-plate or bed of jointer in various ways, sometimes dovetailed in the slot and again clamped on top parallel with the table. B represents the surface-plate, A represents the guard, which is simply a common board dovetailed to fit the opening in the bed allowed for the knives. It slides with the dovetail, and without trouble is kept over the knives, close up to the material being worked and is fastened by means of a clasp and thumb-screw, allowing only sufficient space between the guard marked A and the gauge of the machine for the material to pass through. No objection should be advanced against the use of this guard, as it costs the employer comparatively nothing, can be made in his own factory, as there is no patent on the device, and will prove to be a safeguard against accident wherever used. There are other guards of a similar nature used in this State, giving satisfaction, on which there are patents.

Cut No. 10 illustrates a hand-guard for planing machines, manufactured by George Gocher, of Johnstown, Pa. This device consists of a shield of heavy sheet iron bolted to a malleable iron slide. The slide is slotted its entire length and is fastened to the table by a single yet strong clamping device, easily put on, and which can be



CUT No. 9—GUARD FOR JOINTER.

adjusted in an instant to suit any width or thickness of material to be worked, allowing the use of the knives the whole width of the table without any danger to the operator whatever. In addition to the shield a steel spring is attached to the front end of the slide, and the material to be planed passes between this spring and the fence, as shown by the cut, and the operator can control the material being



CUT No. 10 — HAND GUARD FOR PLANER.

planed with one hand better than with both without it, and runs no risk whatever of being cut. This device seems to give satisfaction wherever in use.

IRONING MANGLES.

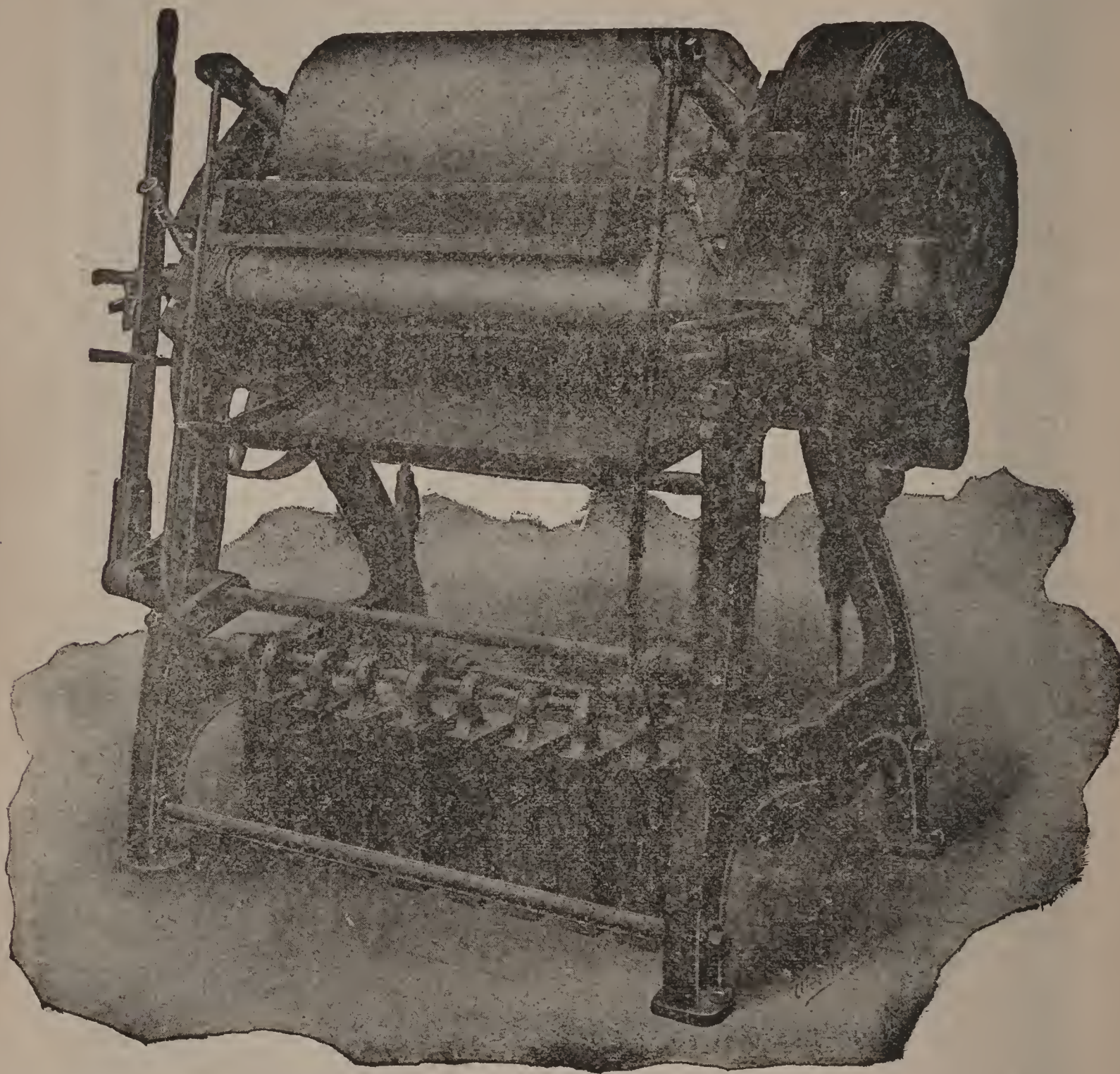
Frequently we hear of some unfortunate laundry girl having her fingers drawn in between the hot rolls of the ironing mangle. Usually the rolls are set just wide enough apart to iron a handkerchief or collar, but sometimes the operator accidentally allows her finger tips to pass too far in between the rolls, and the hand, and sometimes the whole arm, may be drawn in between the slow-moving hot rolls and crushed and burned. Many accidents of this kind have occurred in this and other States, causing the loss of the ends of the fingers, the hand and perhaps the arm. The occurrence of such accidents can be prevented by placing a safety strip in front of the top roll, strip to be so adjusted that the bottom of the strip will set a trifle above the bottom of the top roll, only allowing sufficient space between the table and the guard to permit the piece to pass through.

Cut No. 11 is an illustration of an ironing mangle in operation. The operator is in the act of ironing collars. The guard is shown by letter B, which is securely fastened in front of the roll, as before described. It will readily be seen that it is utterly impossible for the operator to get her fingers between the rolls, for the reason that there is not suffi-



CUT NG. 11 — GUARD FOR IRONING MANGLES AND ROLL-FEED MACHINERY.

cient space between the table and guard to admit her hand. A represents the hot roll. The efficiency of this safety-guard is appreciated by the laundrymen of the State as a valuable attachment, and manufacturers of this class of machinery throughout the country are now adopting this safety-guard and placing it on nearly all of the roll feed machinery built by them. This safety strip or guard is found not only very



CUT No. 12—COLLAR AND CUFF IRONER.

valuable as a guard on ironing mangles but will serve the same purpose on other roll-feed machinery, such as short planers, sandpaper machinery, corrugating machinery used in sheet metal factories, and in fact on all machinery where the material is fed into the machine by means of rolls. This one illustration will suffice for all machinery of this character.

Cut No. 12 illustrates a collar and cuff ironer which is manufactured by the American Laundry Machine Co., of Cincinnati.

In addition to the necessary guard in front of feed rolls it will be observed that the machine is equipped with a complete gear covering, leaving nothing exposed from which injury to the operator or other person who might come in contact therewith possible.

RIP-SAWS.

The circular rip-saw is one of the most convenient pieces of wood-working machinery in use and classed among the most dangerous. Thousands of men can testify to this by their mangled limbs. The rip-saw can be made reasonably safe by the use of saw-guards.

Cut No. 13 illustrates a guard known as the "Uncle Joe" saw-guard. It is manufactured by John T. Towsley Manufacturing Co., of Cincinnati, Ohio. One of the excellent features of this guard is its attachment or fastening to the saw-table. There is a brass plate let down into the table in line with the saw. The plate contains several dovetailed grooves. The guard is supported by a splitter made of steel about the thickness of the ordinary rip-saw. On the side of this splitter is fastened two dovetailed strips, and in case of readjustment or a desire to remove the guard for any cause, you simply lift the guard from its bearings, which is easily done with the hand. The frame of the guard is made of brass, about one inch wide, which comes down over the top of the saw, and on each side it is covered with tin, marked A, and riveted to the frame. The frame of the guard is provided with two rolls. The same can either be used with the guard setting down flat on the table, entirely covering the saw, and when the material to be ripped is placed on the table, it will easily arise allowing the board to slip under. Through the top of the splitter, marked B, there are four little holes in which a point can be set, which is provided, and the guard can be adjusted according to the thickness of the timber being sawed, which position is generally preferred. The handle, marked C, in front of the hood, allows the operator to raise and lower hood whenever desired. This guard is used by many manufacturers throughout the state and can be found in use by some of the largest firms in the city of Cincinnati, who express themselves in a manner of appreciation of their value for their hand saving, and are free to say that they would not operate their saws without this or some other device equally as good, for they believe that numerous accidents have been averted and many law suits prevented by their use. They also say that their men employed at such saws would not operate them without the guard, and that their employes accomplish more work with them than without them, from the fact that while using the guard they have no fear of meeting with accident.

Cut No. 14 illustrates a guard known as the "O. K." saw-guard, which is manufactured by the National Saw-guard Company, of Indianapolis, Indiana. This is a simple guard and quite extensively used by the manufacturers of the State and those using the guard speak of it in



CUT No. 13 — UNCLE JOE SAW-GUARD.

the highest terms. The guard is supported by a thin steel splitter, which is held in position by a clevis, securely fastened by a bolt to the saw-table in line with the saw. The splitter is held in the clevis by the means of a key. The guard is made of cast iron, which is about one and one-fourth

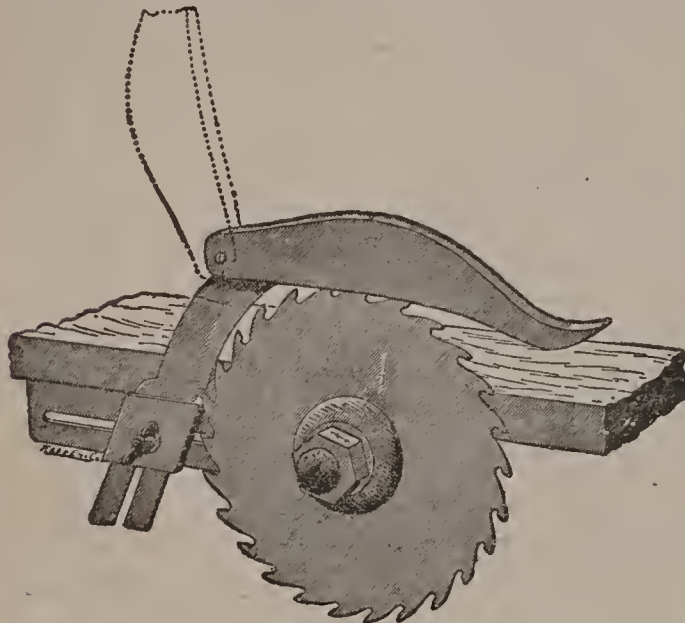


CUT No. 14 — O. K. SAW-GUARD.

inches wide, hollowed out on the under side. There are no covers on the sides. The guard can be adjusted for the use of saws of different sizes by raising or lowering the guard on the splitters, which slips back and is held by a thumb-screw, and is adjusted to the thickness of the material to be cut, being made in two pieces, one passing over the other with a round rod passing through a nut, which is shown in the illustration. The guard

can therefore be made rigid in any position. In addition to preventing the operator's hands from coming in contact with the saw, this guard has a fork-shaped dog which is fastened to the splitter on the side between the gauge of the saw and the splitter. As the saw passes through the material the dog rides on the top of the timber being worked, and in case the saw should bind and the piece being sawed should start to fly back, as is very frequently the case, the dog forms a brace, and the harder the piece of timber pulls back the tighter the dog holds it to the table, and we are confident that to this simple device can be credited the saving of many lives.

Cut No. 15 illustrates a guard known as "Bennett Reliable Saw-guard," Toledo Saw Co., of Toledo, Ohio, agents. This guard, it will be observed, is fastened to the bottom side of the table with two bolts passing through table and two slotted lugs, so that it can be adjusted, in case the holes are not exactly in the right place, and be put in direct line and square behind saw. The piece under table is made on a square angle,



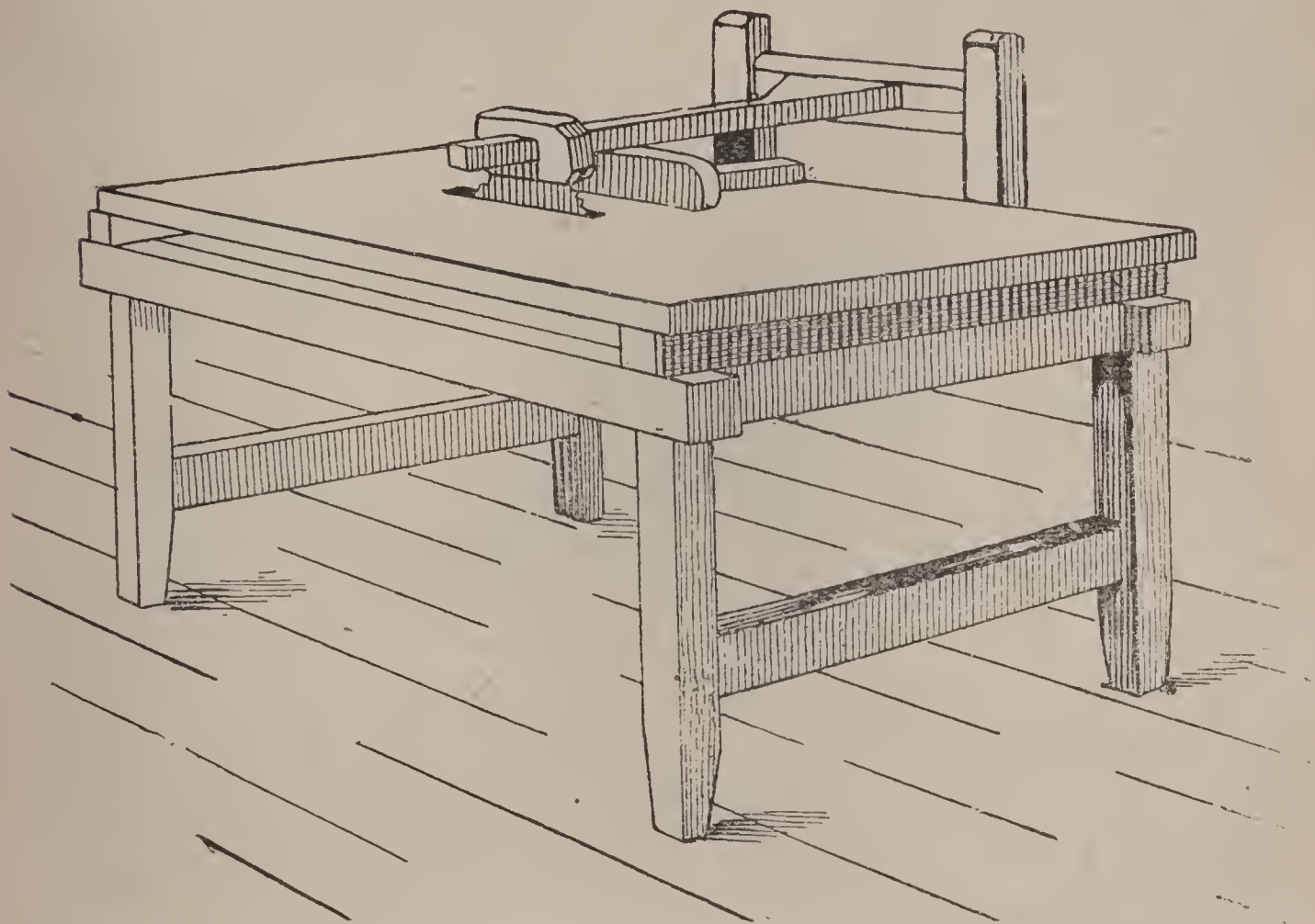
CUT NO. 15 — BENNETT RELIABLE
SAW-GUARD.

with a slot on the side for bolt with a thumb-screw to slide back and forth. There is also a slot in spreader directly behind saw. These slots are for the purpose of adjusting guard easily and quickly so as to fit a large or small saw. If a large saw, raise up guard and move it back sufficiently to clear teeth of saw. If a small saw, drop it down and place close to saw. The piece under table is made of brass metal and about seven inches long. The spreader is made of spring steel.

The guard over saw is made of malleable iron about three-fourths of an inch in width, with a piece about one-eighth of an inch in thickness covering top of guard, with a slot cut in, which guard rests on top of spreader to prevent guard from coming in contact with saw. A square head tap-screw holds guard to spreader, and a projecting piece at thumb-screw holds spreader in place and a piece of hard wood between this projecting piece and spreader prevents them from slipping. This guard is adjusted by one thumb-screw, is adjustable in all ways and not expensive. The guard is in use by many manufacturers in Toledo and the northwestern part of the State and seems to be giving general satisfaction.

Cuts Nos. 16 and 17 illustrate a guard which is the production of one of the District Inspectors of this Department. Cut No. 16 shows the guard in use and cut No. 17 shows guard thrown up out of way. In many instances where saw-guards have been ordered, and manufacturers have provided guards and placed them on their saw tables, the first time that the sawyer has occasion to remove the guard to perform a class

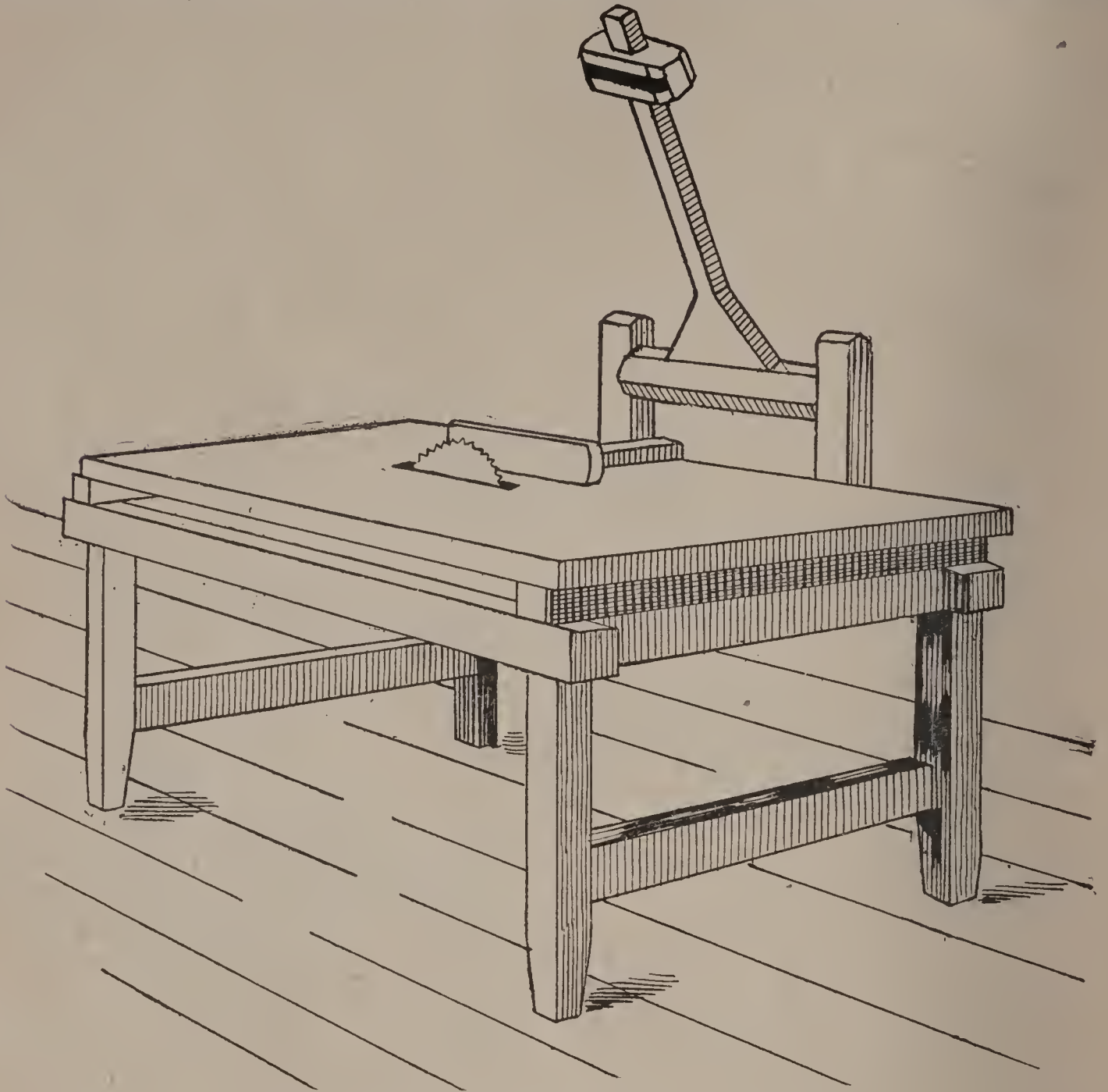
of work which can not be done with the guard in place, he hangs it on the wall or throws it under the saw-table, because a little time and trouble must be taken to readjust the guard. This guard need not be removed from the table when a class of work is to be done where it can not be used. It is simply thrown up out of the way and when the class of work where it can not be used is finished, all that is necessary is to pull down the arm so that it rests on the gauge and the saw is covered and again ready for ripping. This guard is made of two upright pieces about two and a fourth inches square, one on each side of mandrel, which are securely fastened to the side of the saw-table, uprights extending high enough above gauge to admit a cross or pivot-block two inches square



CUT No. 16 — SAW-GUARD IN USE.

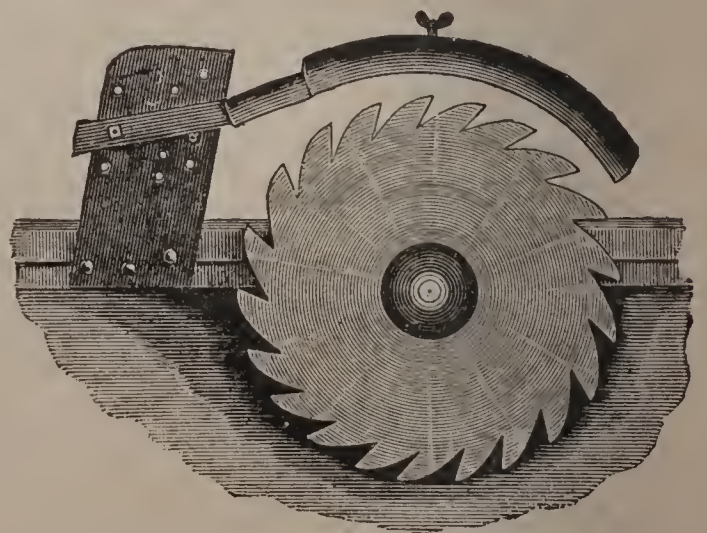
between the two uprights, the ends of pivot-block being rounded so as to be let into holes in both uprights and fit closely. In center of pivot-block a mortise made to admit of the insertion of arm-piece seven-eighths inch thick and two inches wide, and long enough to reach over the saw when resting on the gauge. At end of arm a block about one and one-fourth inches thick or thicker if necessary, is mortised and placed thereon, block to be grooved wide enough to fit over saw and not interfere with same and to be of sufficient length to come down over and cover so much of the saw as may be necessary to protect the operator. This guard can be fastened to the side of table where the saw is operated by belt from below, and if saw is operated by belt from above, it can be fastened to top of table. Though this guard may be a little crude yet it will serve the purpose as a protector and can be made by the manufacturer in his own factory in a very short time and cost comparatively nothing.

Cut No. 18 illustrates the Eclipse Detachable Saw-Guard, manufactured by H. J. Bernard and Company, at Indianapolis, Indiana. The Eclipse saw-guard is simple in construction but strong and durable, and



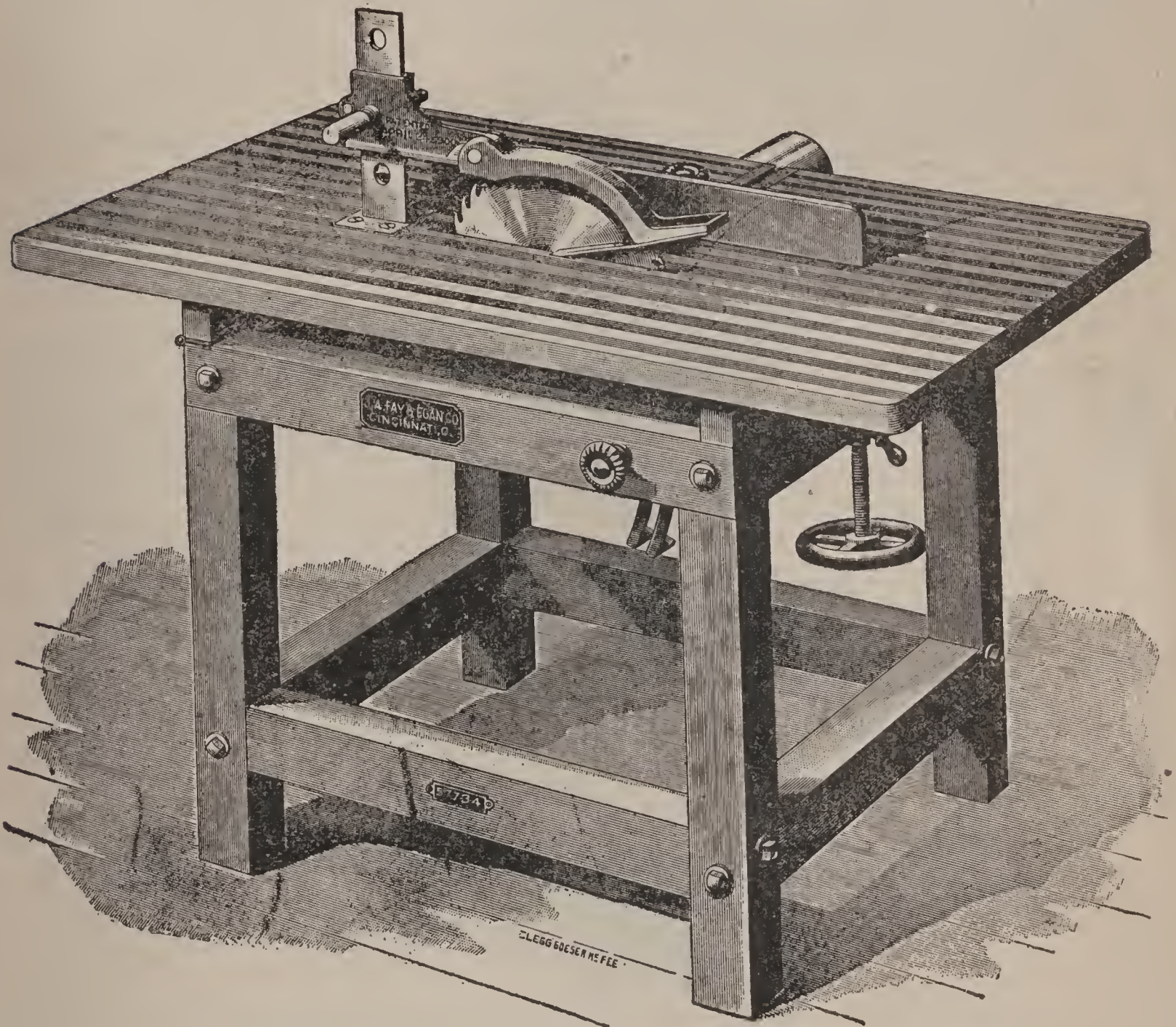
CUT No. 17 — SAW-GUARD NOT IN USE.

can be attached by any mechanic in a few minutes. The base plate is of solid construction and is held in position by four heavy screws, preventing the guard from working loose on the table, thus overcoming a serious objection. The blade is made of saw steel, riveted on a casting that interlocks with the base plate, and the two plates are held together by a disc and screw forming an immovable union of the two plates. The hood is made of galvanized iron and adjustable to saws from ten to sixteen inches in diameter and is adjustable on the blade, so that it can be elevated or lowered. To set this guard, mortise out the saw-table to fit the base plate, and



CUT No. 18 — ECLIPSE DETACHABLE SAW-GUARD.

then set the base plate and blade so that the blade will be in exact line with and about one inch from the saw, and there will be no trouble experienced from the lumber binding on the saw. The elongated screw holes in the base plate will permit the plate to be moved a fraction of an inch backward or forward in order to adjust the blade with the saw. This guard can be removed or replaced in a very short time, doing



CUT No. 19—ADJUSTABLE SAW TABLE WITH SAW-GUARD.

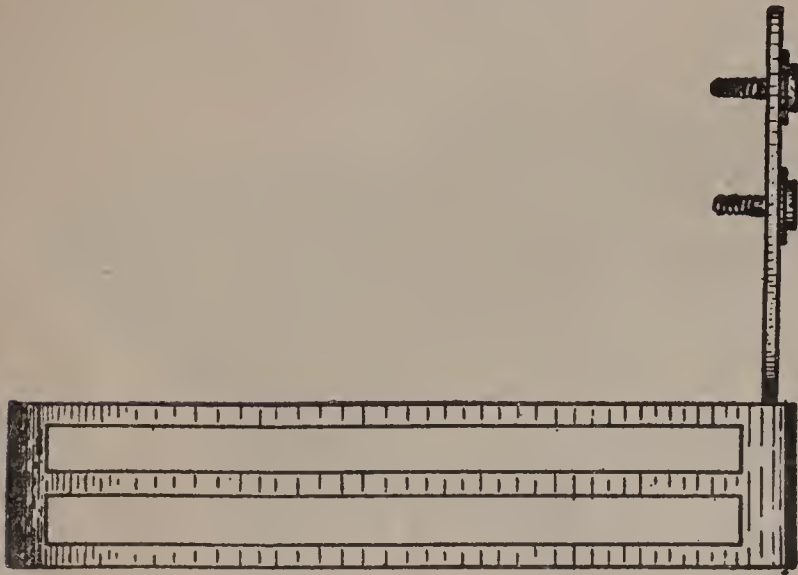
away with the loss of time in changing saws. This guard is giving satisfaction wherever in use.

Cut No. 19 illustrates an adjustable saw table equipped with saw-guard. Both the adjustable table and guard are manufactured by the J. A. Fay & Egan Co., of Cincinnati, Ohio.

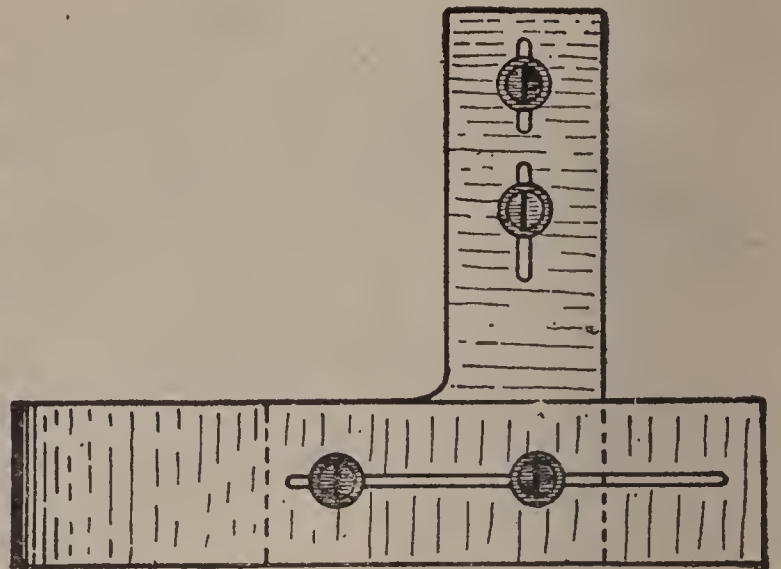
In the past much trouble has been experienced in finding a device which was especially adapted to the use of an adjustable saw-table, and at the same time prove practical. This guard seems to have given entire satisfaction wherever used, and the illustration is so plain that it requires no further explanation.

GUARD FOR PRESSES AND STAMPING MACHINES.

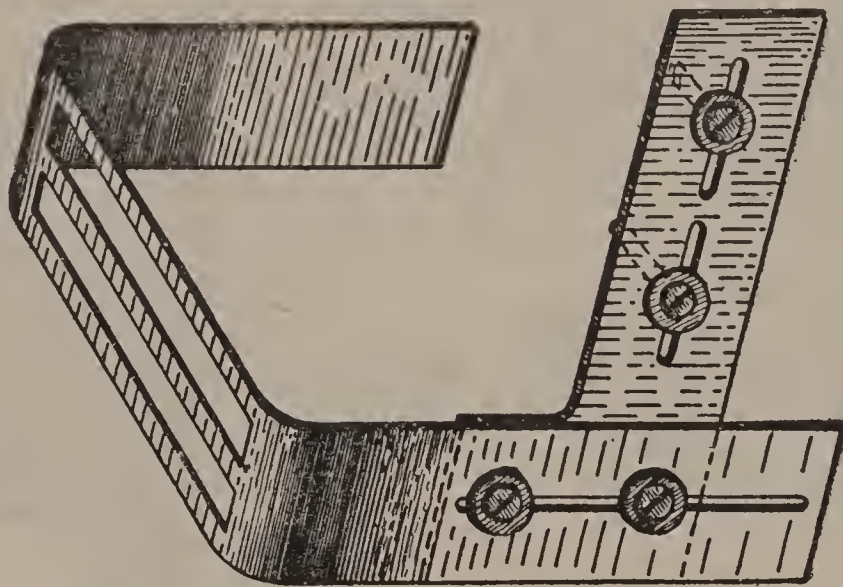
Thousands of operators of stamping machines have been maimed from the want of some device to prevent the mashing of fingers or hands while thus employed. It was believed that there could be no invention placed on such machines without to some extent destroying their utility, but cuts 20, 21 and 22 represent the component parts constituting a practical guard.



CUT NO. 20 — FRONT VIEW OF GUARD.



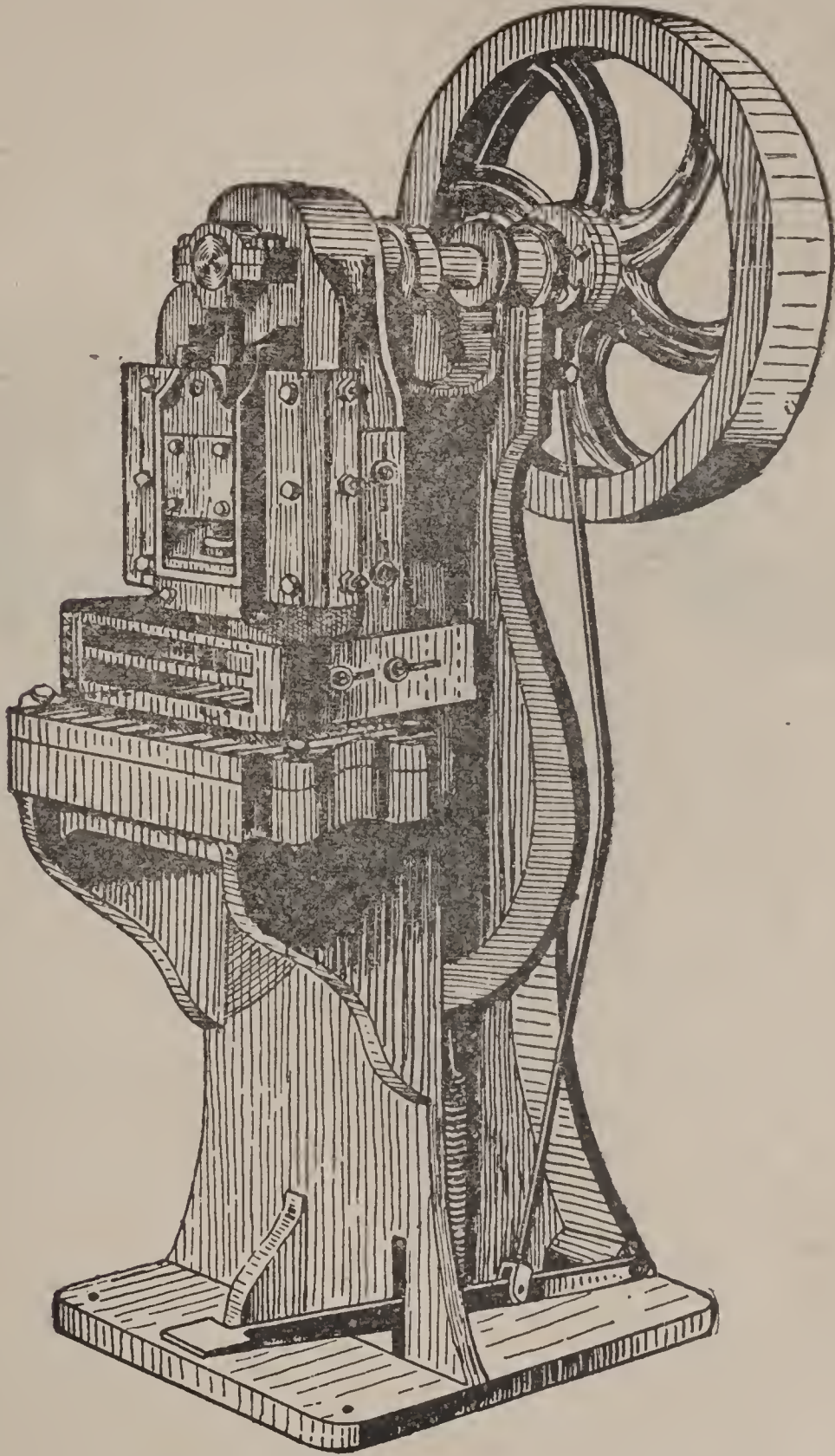
CUT NO. 21 — SIDE VIEW OF GUARD.



CUT NO. 22 — ISOMETRICAL VIEW OF GUARD.

Cut No. 23 represents the press with guard attached and ready for use. This device is the invention of Mr. John D. Long, Supt. of the tin manufacturing works of Messrs. Guina & Co., of New York City. Mr. Long for humanity's sake, refrained from taking out letters patent on his invention, though it is a practical device, and, with very slight modification can be applied to nearly every tin and sheet metal stamping press now in use. It has been attached to all the presses of the above named firm for a number of years, and since its adoption there has not been a single accident on any of their stamping machines. The attachment consists of a thin metal strip, bent so as to surround the dies, high enough to make it impossible to get the hand under the descending stamp, and with a perforation extending the length of the metal

strip on each of its faces. There is just sufficient room for the insertion of the metal to be stamped or shaped, and the work is always in sight through perforations extending the length of device on each side. There is no motion whatever to the guard. It can not get out of order



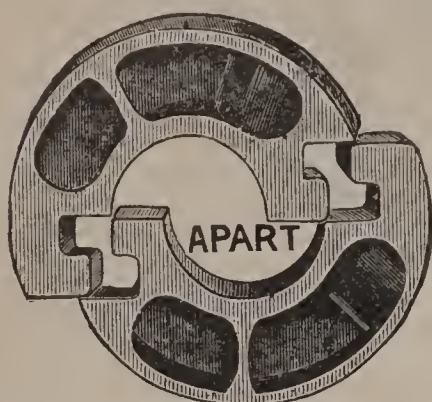
CUT No. 23 — STAMPING MACHINE WITH GUARD ATTACHED.

and there is no occasion to tamper with it. Every manufacturer operating this class of machinery should adopt this guard. It can be made and attached by any machinist.

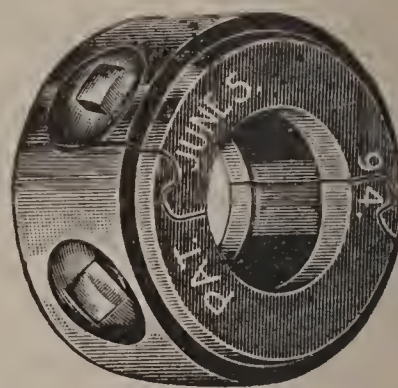
SAFETY SET COLLARS.

In placing collars on shafting it is very important that all set-screws should be countersunk. The protruding set-screw is very dangerous, and has, perhaps, been the cause of more fatal accidents than

any other piece of machinery used by the manufacturers, and many accidents from this cause are reported to this department each year. Cuts Nos. 24 and 25 represent a split collar now in use in many manufacturing establishments throughout the State and known as Shartle's Safety Set Collar, manufactured at Middletown, Ohio, by the Middletown Machine Co. Cut No. 24 shows the collar disconnected or apart, and No. 25 the collar together as it would appear on the shaft. This collar can be easily placed on a shaft without removing pulleys, couplings or taking down the shaft. The screws are countersunk below the surface making it almost impossible for the head of the screw to catch the cloth-



CUT NO. 24—SHOWING COLLAR
DISCONNECTED.



CUT NO. 25—SHOWING COLLAR
CONNECTED.

ing of any one who might be oiling bearings near it or performing some other duty. An ordinary monkey-wrench can be used to tighten the set-screws. They are bored to any size.

There is another similar split collar, called the "Giant Safety Collar," manufactured at Gouverneur, N. Y., by J. B. Johnson.

GUARDS FOR COG-WHEELS, SET-SCREWS, ETC.

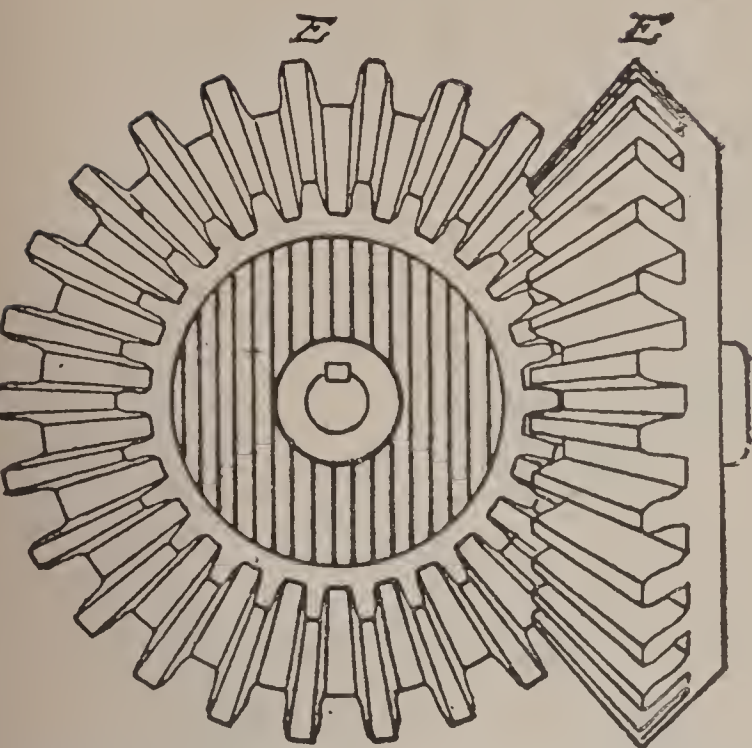
Following are a few practical guards for cog-wheels, set-screws and protruding ends of shafts which are so often found unprotected in many of our shops and factories.

Cut No. 27, DD, shows a practical way of guarding cog-gearing EE as represented in cut No. 26. The casing can be made of metal and be so adjusted as to be removed when necessary for oiling and cleaning.

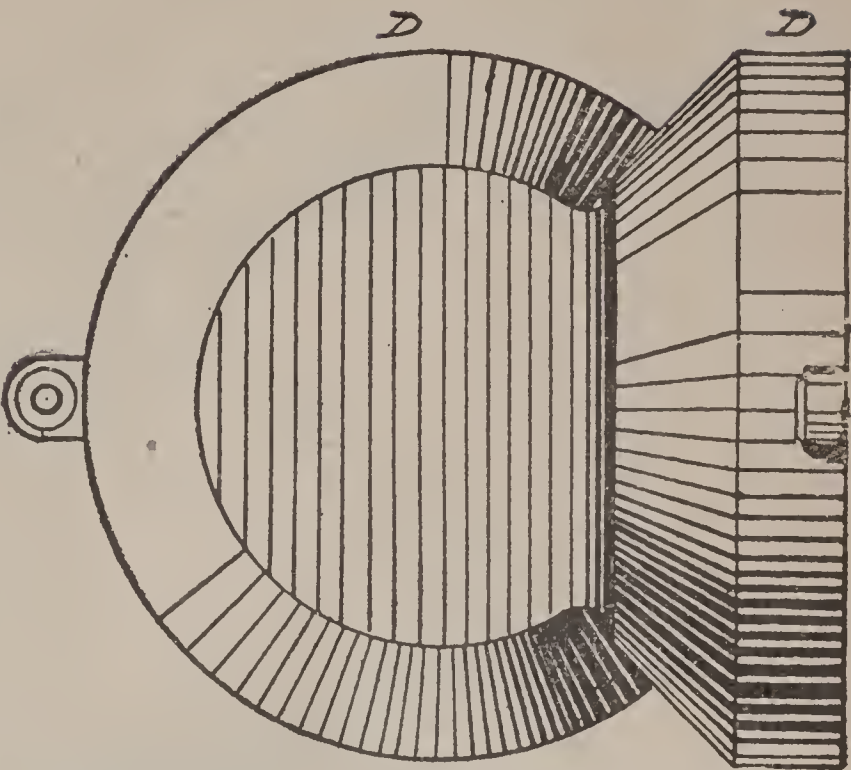
Cut No. 28 shows exposed spur-wheels BB, with an imperfect guard A for protection.

Cut No. 29 shows a complete cover, CC, for spur-wheels as shown in cut No. 28, BB, which is made of metal and can also be adjusted so as to be easily removed if necessary for oiling or any other purpose, and replaced in a moment. These covers are not only a protection against injury to person, but prevent dust from getting into the wheels, which is very injurious, causing the wheel to wear out much sooner than when completely covered.

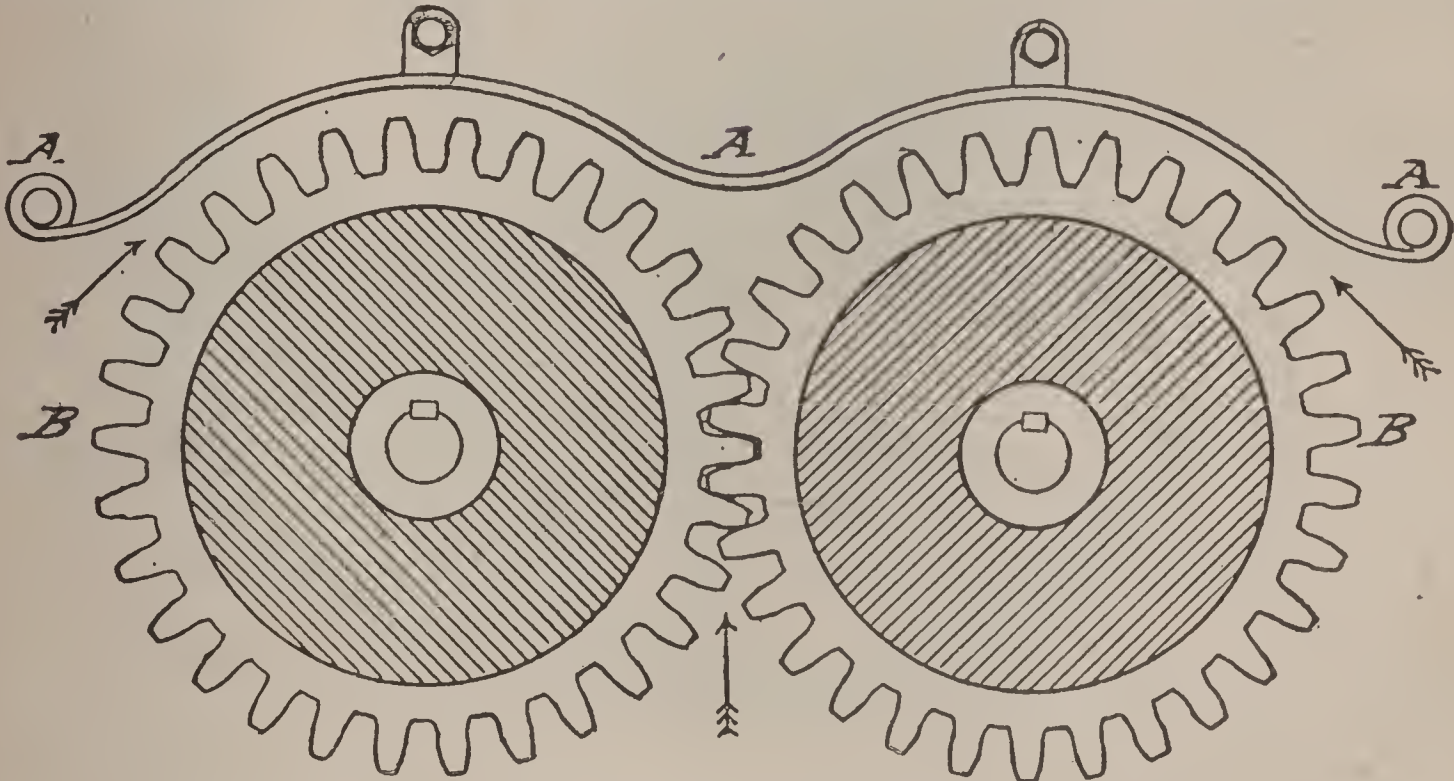
Cut No. 30 shows a dangerous collar set-screw A, and a projecting shaft with a key-way in exposed end marked B.



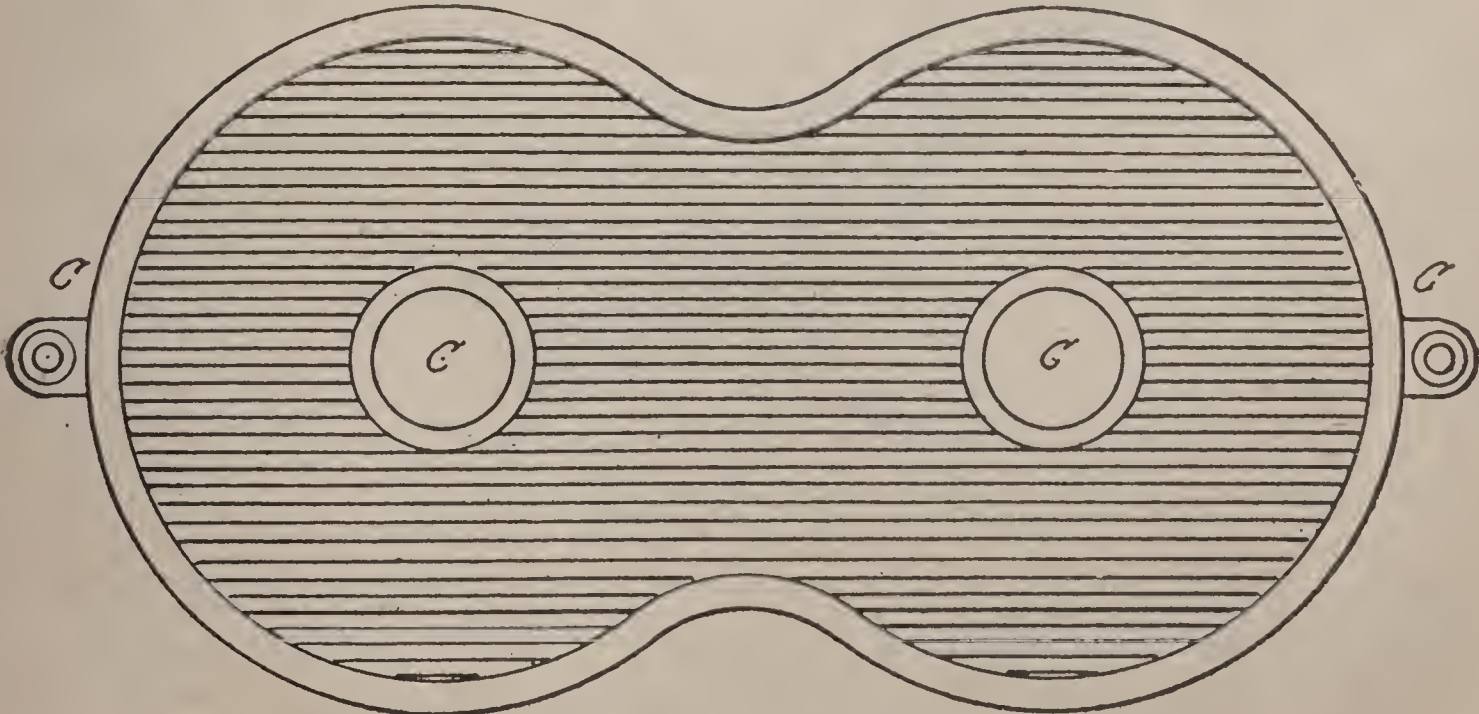
CUT No. 26 — EXPOSED BEVEL WHEELS.



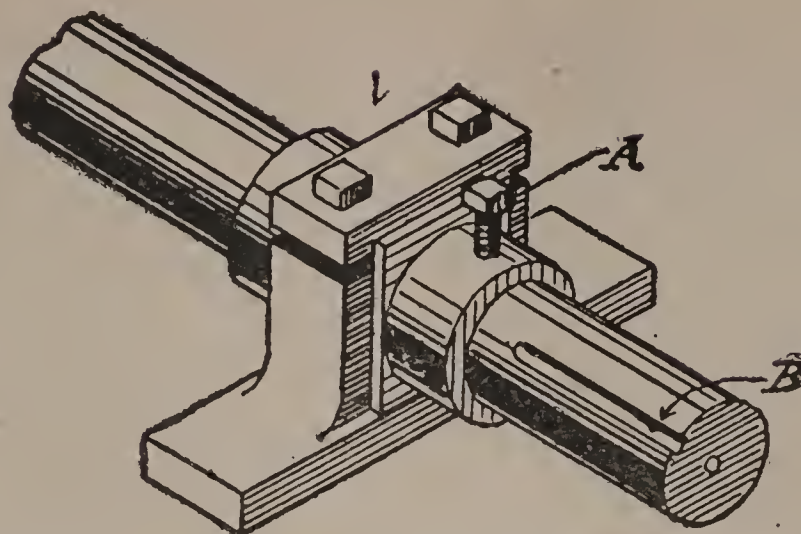
CUT No. 27 — COVERED BEVELED WHEELS.



CUT No. 28 — IMPERFECT GUARD FOR SPUR WHEELS.

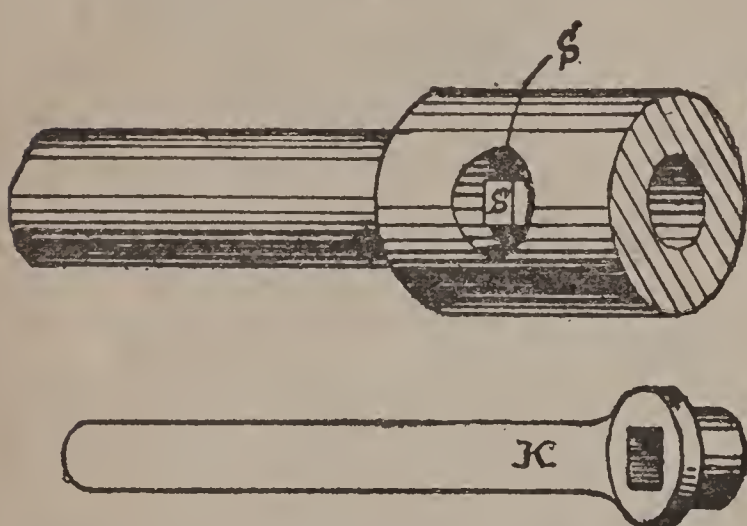


CUT No. 29 — SHOWING A COMPLETE GUARD.

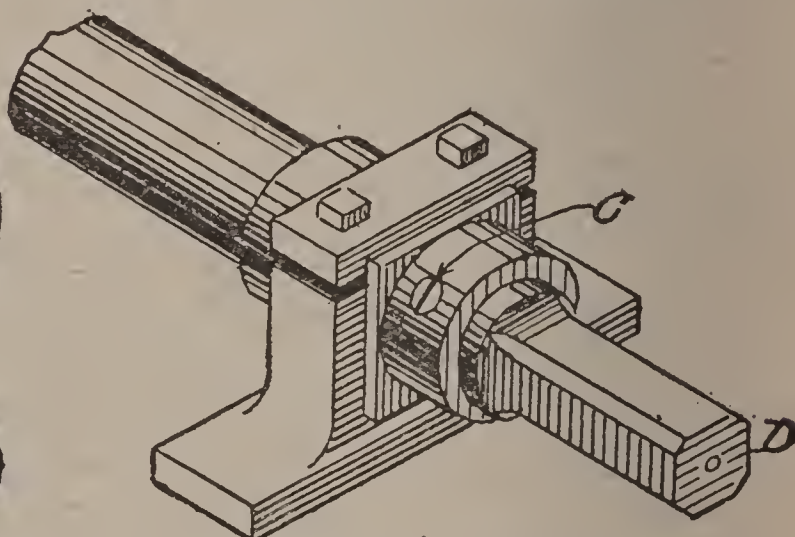


CUT No. 30 — SHOWING A PROTRUDING SET-SCREW.

Cut No. 31 shows set-screw S, which is deeply recessed in collar, making it next to impossible to catch the clothing of one who might come in contact with shafting, and can be adjusted by box key marked K.

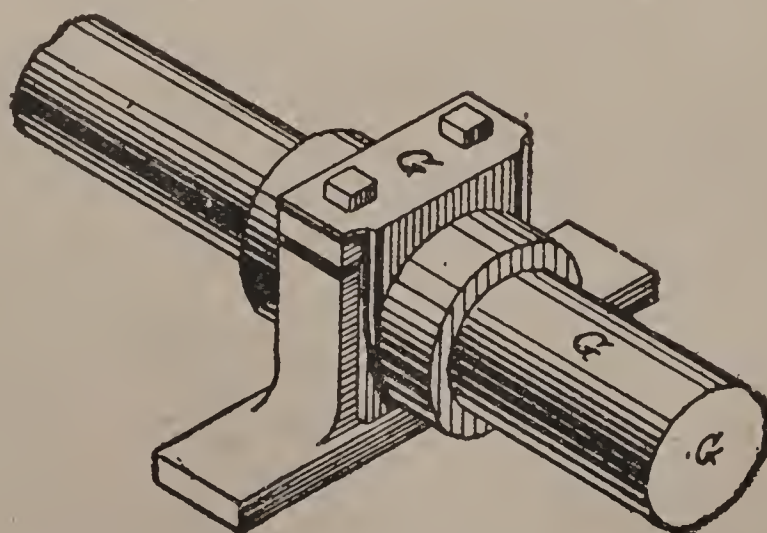


CUT No. 31 — SET-SCREW COUNTERSUNK.



CUT No. 32 — SET-SCREW AND SHAFT.

Cut No. 32 shows another form of set-screw C, countersunk, with projecting square end of shaft marked D.

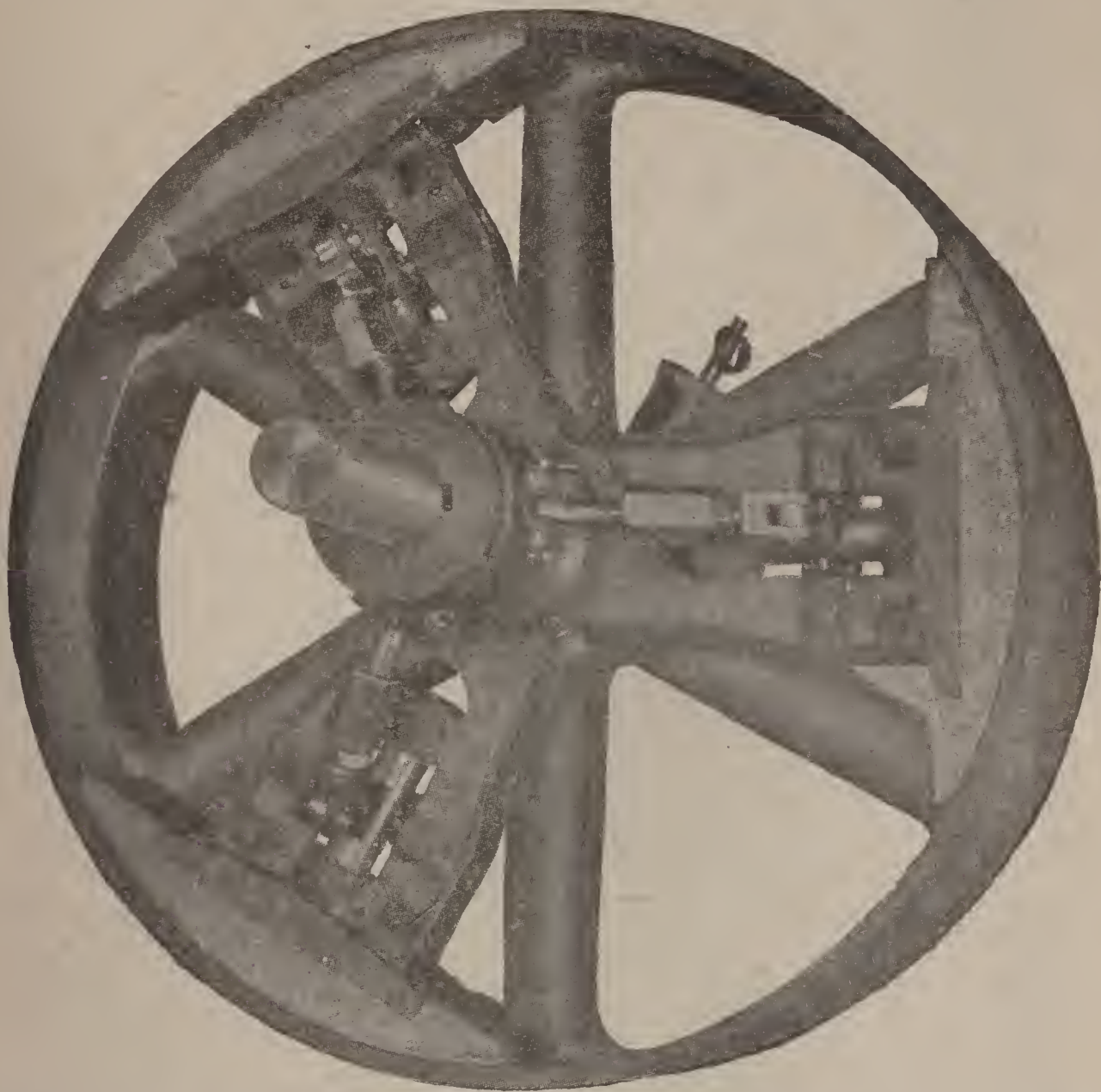


CUT No. 33 — SHAFT END PROTECTED.

Cut No. 33 shows a practical method of guarding protruding square shaft end of shafting with key-way as shown by cuts Nos. 30 and 32. G shows end of shaft smoothly covered with a sheet metal cap.

FRICTION CLUTCH PULLEYS AND CLUTCH COUPLINGS.

Cut No. 34 illustrates what is known as the Preslar Friction Clutch Pulleys and Clutch Couplings, manufactured by the Preslar-Crawley Manufacturing Co., West Second St., Cincinnati, Ohio.

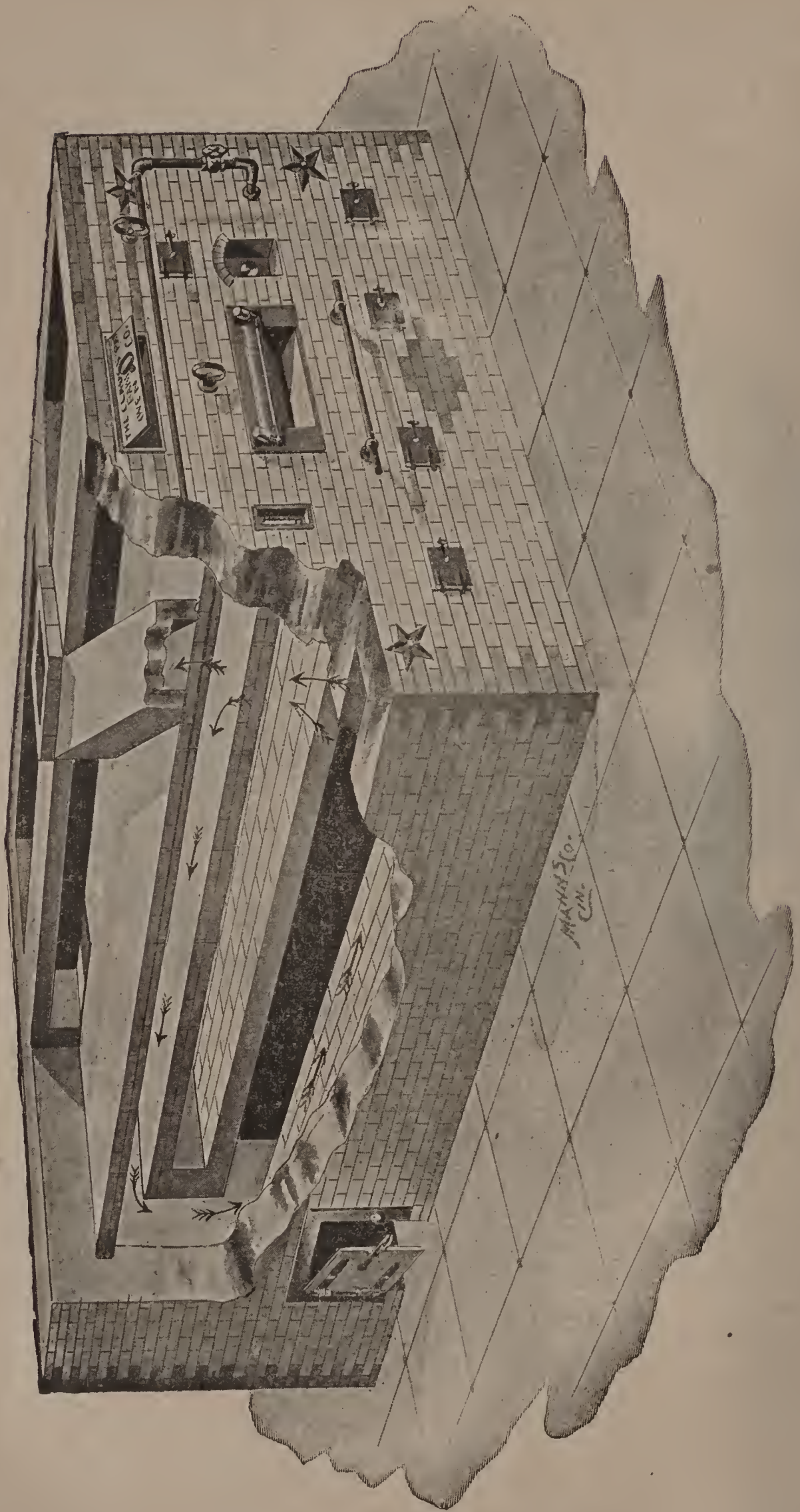


CUT No. 34 — FRICTION CLUTCH PULLEY AND CLUTCH COUPLING.

In the past a great deal of trouble has been experienced with friction clutches, owing to the fact that they were not, as a rule, direct in action. Clutches are placed on shafting for the purpose of stopping the shafting and machinery instantaneously. This is possible with the clutch illustrated, as it seems to be constructed on correct mechanical principles, simple and direct, a powerful grip and a positive release that can not fail to act. Like all other simple mechanisms, necessity of frequent repairs are minimized. There are no springs and the wooden shoes can be replaced without disturbing the clutch. These clutches are made in all sizes, and are especially adapted to high speed and heavy loads.

STATIONARY BAKEOVENS.

Cut No. 35 illustrates a bakeoven built by the Clauss Patent Bakeoven Co., of Cincinnati, Ohio, and is published with our illustrations for the guarding of dangerous machinery more for the purpose of showing

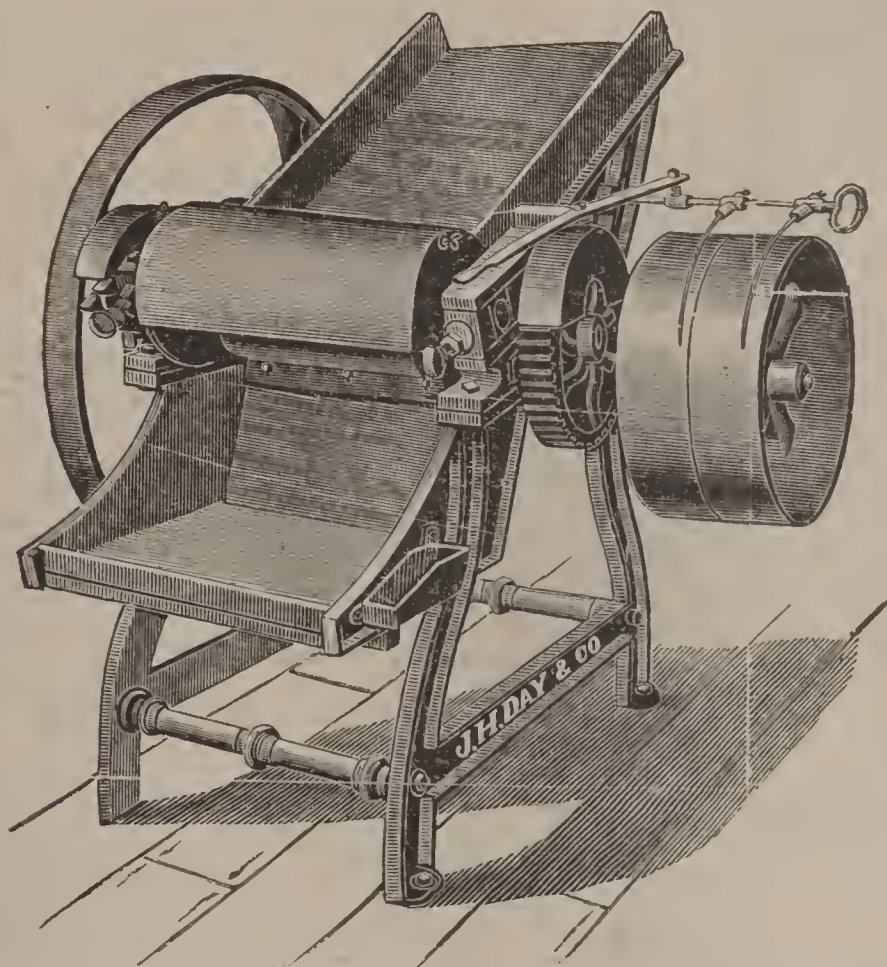


CUT No. 35 — THE CLAUSS PATENT BAKEOVEN.

a modern bakeoven than giving notoriety to the builders, as there are quite a number of other oven builders in this State who construct ovens for baking purposes, which, perhaps, are equally as good. A number of ovens of the above patent have been constructed in Ohio, all of which seem to be giving general satisfaction.

SAFETY APPLIANCES FOR BAKESHOP MACHINERY.

One of the most common sources of accidents in the bakeshop comes from the use of the dough break or dough roller. Quite a number of devices have been invented for the purpose of preventing the

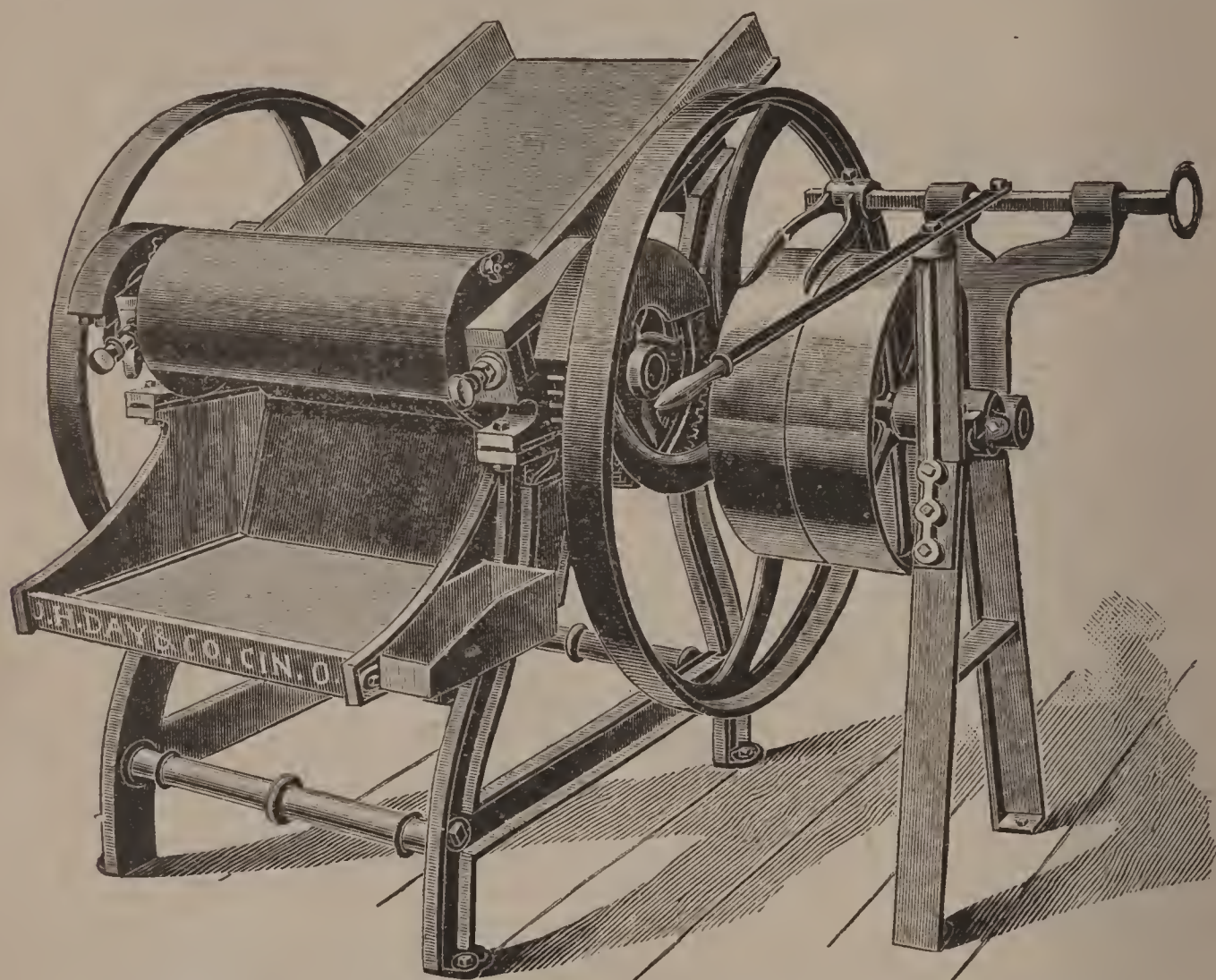


CUT No. 36 — DAY'S SINGLE FLY-WHEEL DOUGH BRAKE.

person operating the machine from getting his hands caught between the rolls, but with all the warning given and protection provided, accidents from this cause continue to occur, necessitating the amputation of fingers, the hand and in some instances the arm. There are still other sources of accident from this machine, that of being caught in the gearing, which often results seriously. Frequently bakers wear loose sleeves, and they become careless, the sleeve is caught in the gearing and the hand or arm is drawn in and badly mangled. It is a great wonder that more accidents do not occur from clothing being caught in gearing or cog wheels, and we believe if it were not for the warning so frequently given by the employer, accidents from this cause would be doubled.

Cut No. 36 illustrates the single fly-wheel brake. The smaller sizes are made with handle on fly-wheel and crank for opposite end of shaft so that they can be run by hand when desired.

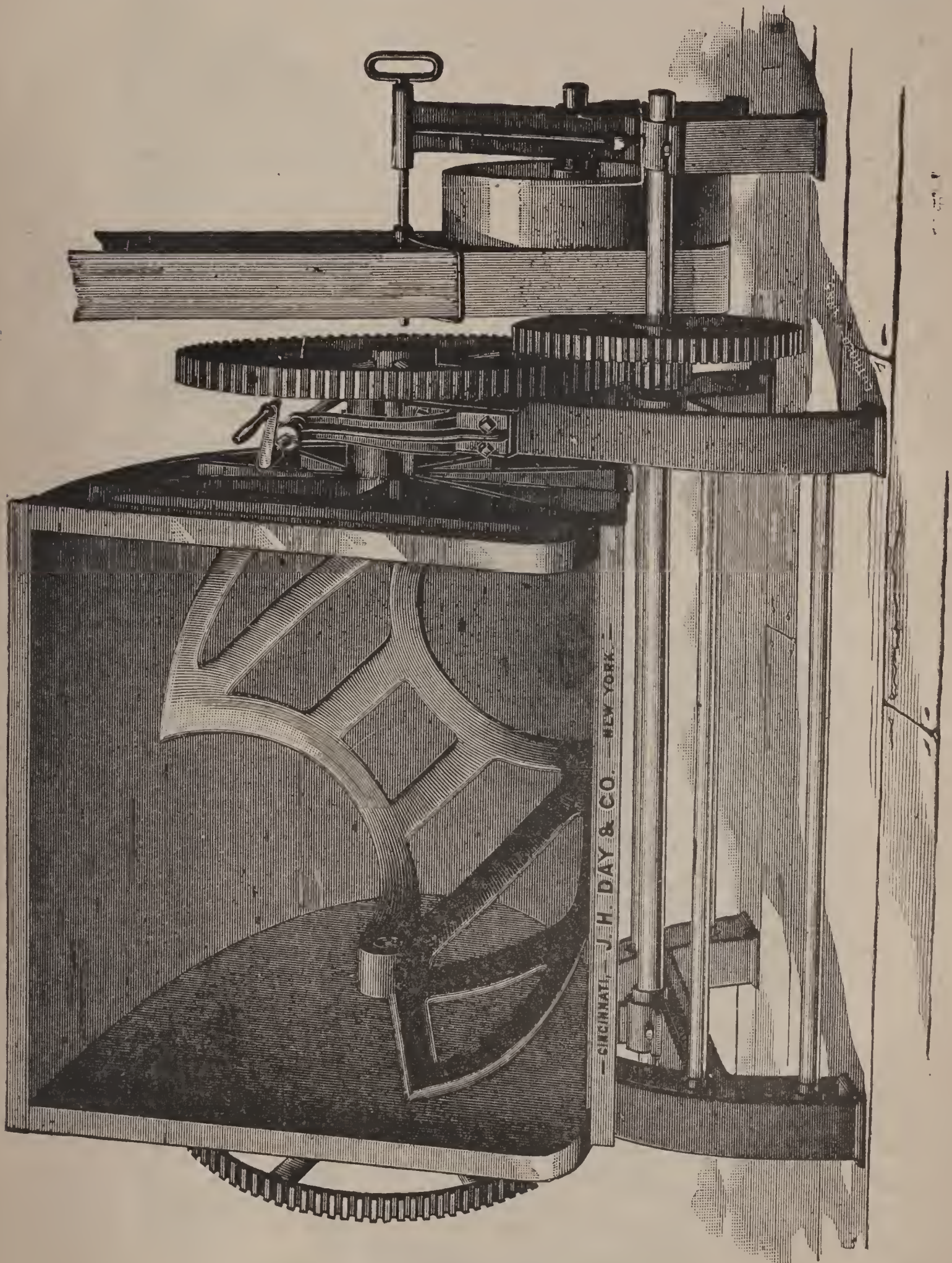
Cut No. 37 illustrates the double fly-wheel brake, such as used in large steam bakeries. It will be noticed that by closely examining illustrations 36 and 37 that the gearing on either end of the rolls are almost entirely covered over with metal covering, thus making it next to impossible for the person operating the machine to come in contact therewith, unless he should deliberately thrust his hand beneath the covering. It will be noticed also that the rolls are almost entirely covered over with metal sheeting, leaving only space sufficient for entrance of dough being fed, to prevent persons feeding machine from coming in contact with rolls. Each roll is provided with an adjustable steel scraper on lower roll and one over the upper roll under the guard, for the purpose of



CUT No. 37 — DAY'S DOUBLE FLY-WHEEL DOUGH BRAKE.

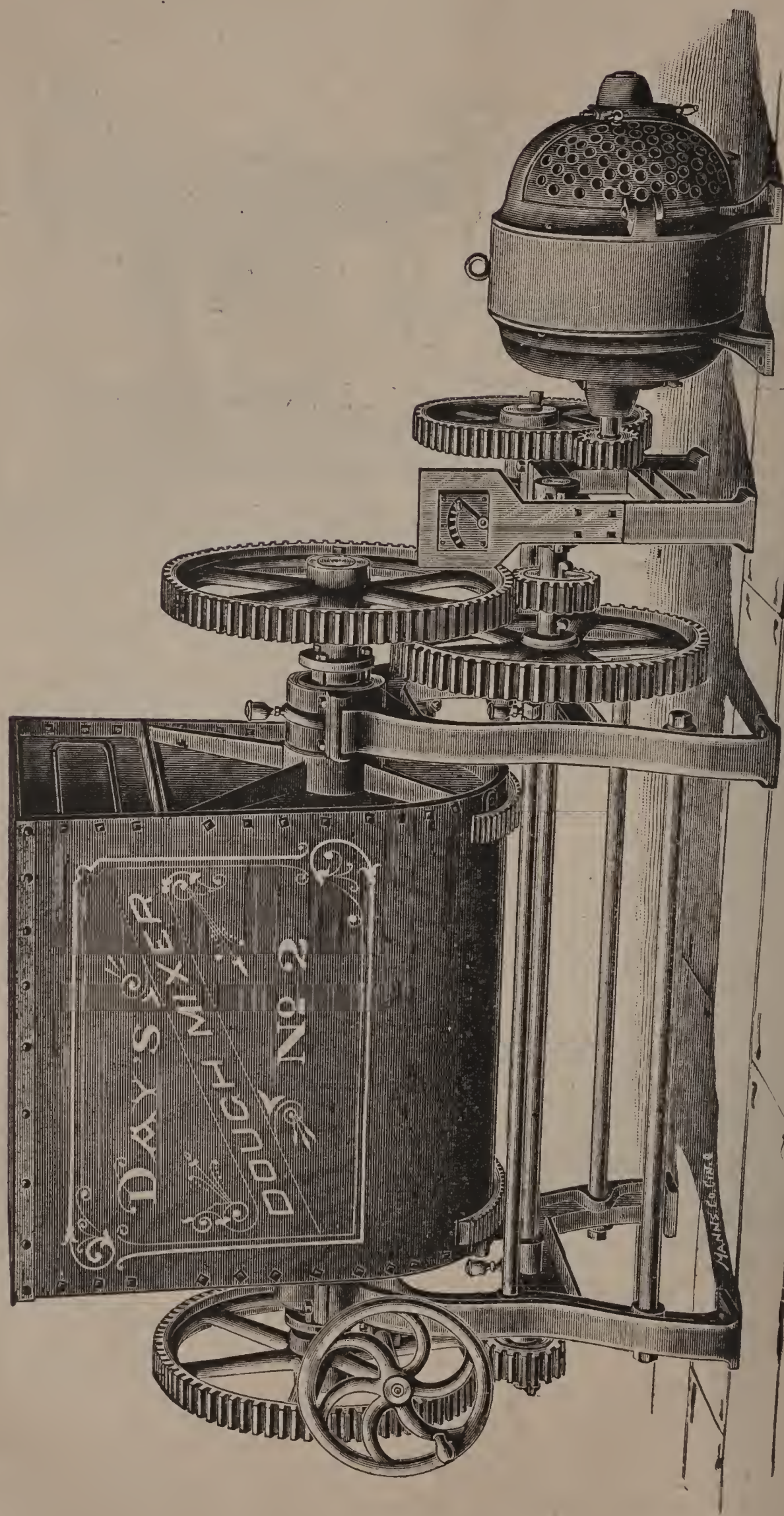
keeping the rolls clean, thus avoiding the necessity of using the hand for this purpose. There is also a belt-shifter provided for each of the machines, which is so arranged that belt can be shifted while standing in front of or at end of machine. A very cheap and convenient device for the purpose of stopping the revolving fly-wheel almost simultaneously with the shifting of belt to the loose pulley can be made by any person, consisting of a treadle fulcrumed slightly in front of the fly-wheel. This treadle has a bearing or brake surface to be applied to lower surface of fly-wheel, the other end being operated by the foot. Another device for this purpose is recommended, consisting of an iron band reaching up and over the top of fly-wheel, connected with a lever attached to floor. This brake, when applied, would have a bearing

on almost the entire diameter of the wheel, and would stop its revolution in a few seconds, so that should person operating the brake get caught



CUT No. 38 — DAY'S UNIVERSAL MIXER.

in any portion of the machinery connected therewith, the shifting of belt and the application of the brake would be simultaneous and machine at once brought to a stand-still.



CUT No. 39 — DAY'S ELECTRIC DOUGH MIXER.

Cut No. 38 is an illustration of a dough-mixer. Accidents on this machine are of no less frequent occurrence than on the roller or brake, but when an accident does occur it usually proves to be very serious. Usually accidents occur while cleaning machine when in motion, which is a very hazardous habit and should be prohibited. We have on record quite a number of fatal accidents from this mode of cleaning, one in particular coming to our mind which occurred in the city of Cincinnati in the early part of 1902, where an employe was cleaning the mixer while in motion and was drawn into the mixer by the agitator and killed before the machine could be stopped, and perhaps all from the want of proper devices for throwing the machine out of motion.

It will be noticed that this mixer is provided with the latest improved device for shifting belts. The operator, while standing in front of the machine, can reach out and shift the belt, stopping the agitator of mixer in a moment, or in any position he may desire, which is very convenient while cleaning. The belt can also be shifted from the rear and end of machine as well.

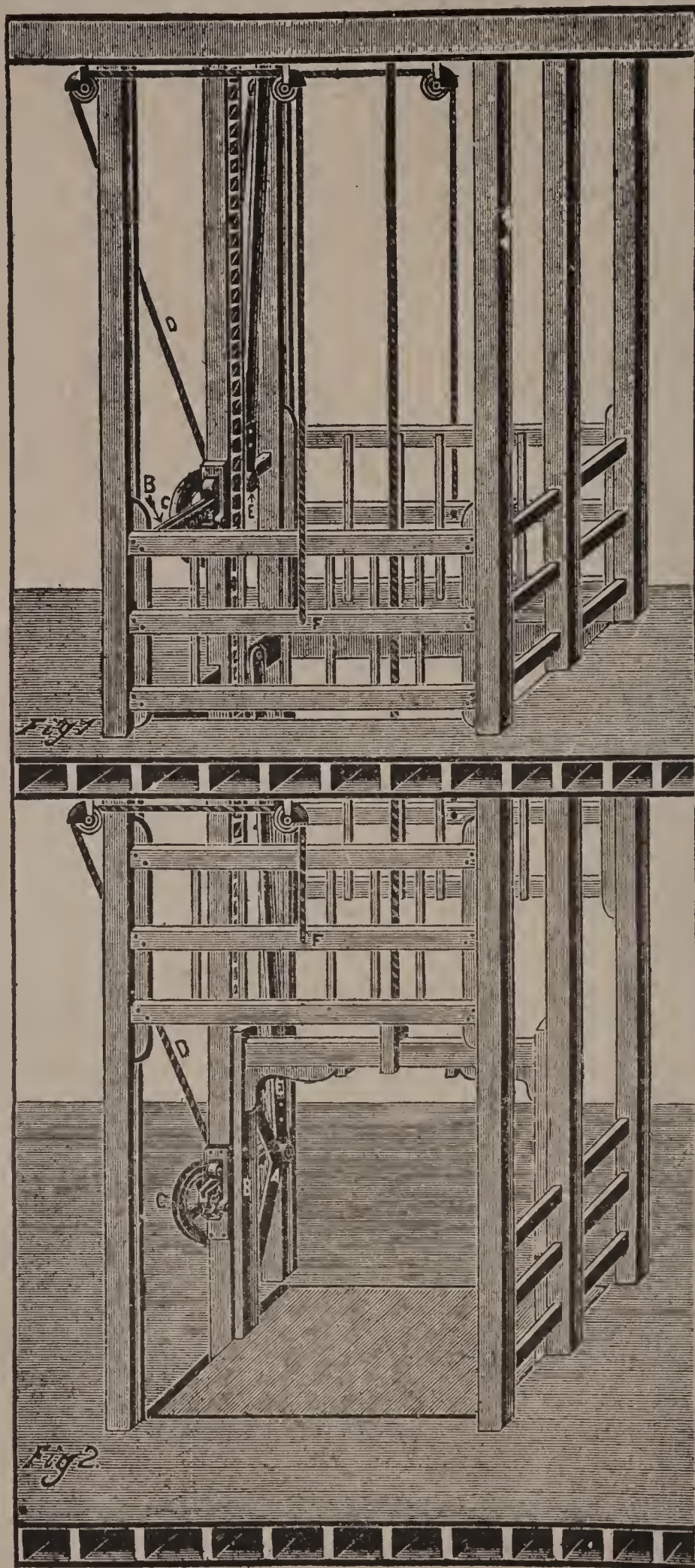
Cut No. 39 is an illustration of the Electric Dough Mixer, directly connected to electric motor. Where electric power is available this is a very economical outfit, saving the expense of pulleys, shafting, hangers and belting. A dough brake can also be attached to motor and one or both machines can be operated at will. The starting and stopping box, which is located within easy reach of person operating machine in front of mixer, is a commendable feature, from the fact that the machine can be immediately stopped in case of accident.

Both dough brakes and dough mixers, together with all the safety appliances connected therewith are manufactured by the J. H. Day Co., of Cincinnati, Ohio. These machines are all of the latest and improved pattern, but as this is not an advertising medium, the merits or usefulness of each can not be discussed for fear of criticism by other manufacturers of the same class of machinery who would, under the same circumstances, be entitled to and worthy of mention. The illustrations are published only to show the safeguards thrown around the exposed and dangerous parts to avoid accident.

PROTECTION FOR ELEVATOR OPENINGS, ETC.

Cut No. 40 is an illustration of a system of elevator gates manufactured by the Richmond Safety Gate Co., Richmond, Indiana. The gates are so constructed that they operate automatically by the movement of the elevator, which both opens and closes the gates. The advantage of such an equipment is at once apparent: It insures the gates being closed when the elevator is not at floor level, and thus prevents any person from stepping into the open hatchway. Another advantage is the saving of labor and time handling the gates and enables those employed about the elevator to do more work in a day. This gate has

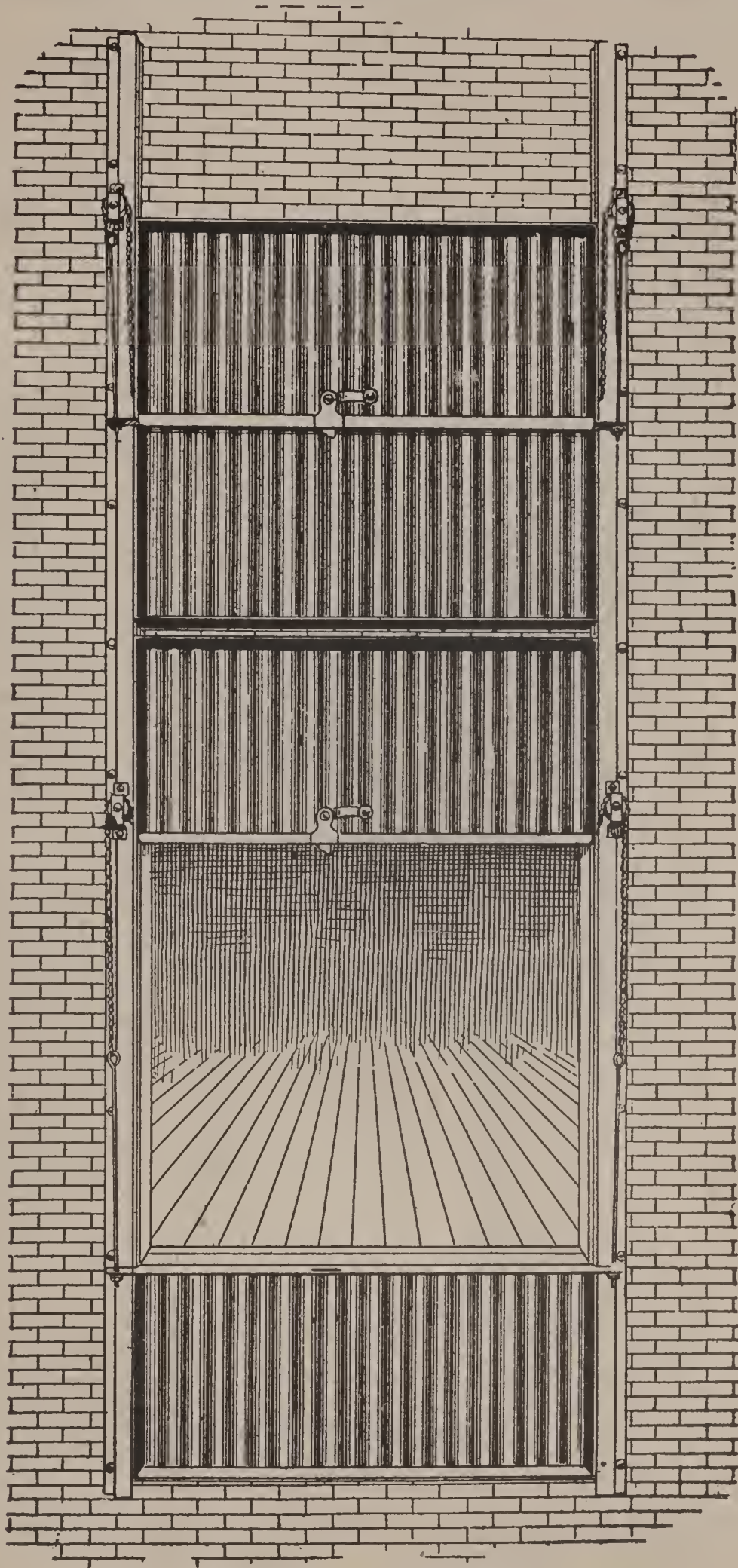
been in use in a large number of factories, warehouses and mercantile establishments throughout the State for a number of years.



CUT NO. 40 — ELEVATOR GATES CLOSED AND OPEN.

Cut No. 41 is an illustration descriptive of a system of counterbalanced corrugated iron doors especially adapted to the entrance ways of

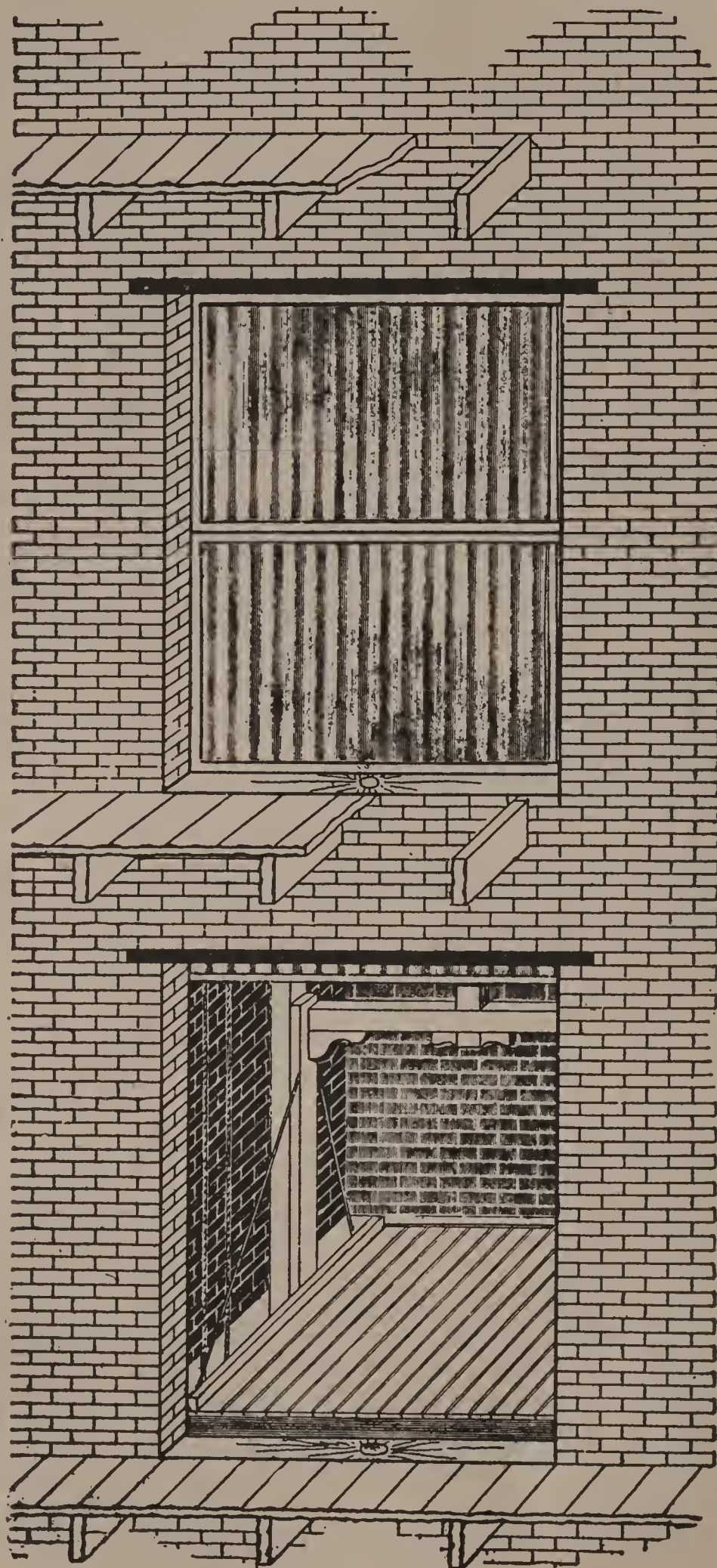
elevator enclosures constructed by brick, tile or other fire-proof materials. The illustration is a view looking from elevator into store room.



CUT NO. 41 — CORRUGATED IRON DOORS.

Cut No. 42 is also an illustration of a system of counterbalanced corrugated iron doors, same as that of No. 41, but is a view looking into elevator. These doors are of great value for guarding the entrance

way to elevator hatchways. The great advantage in this style of equipment is that they can be placed on the inside of the hatchway and thus

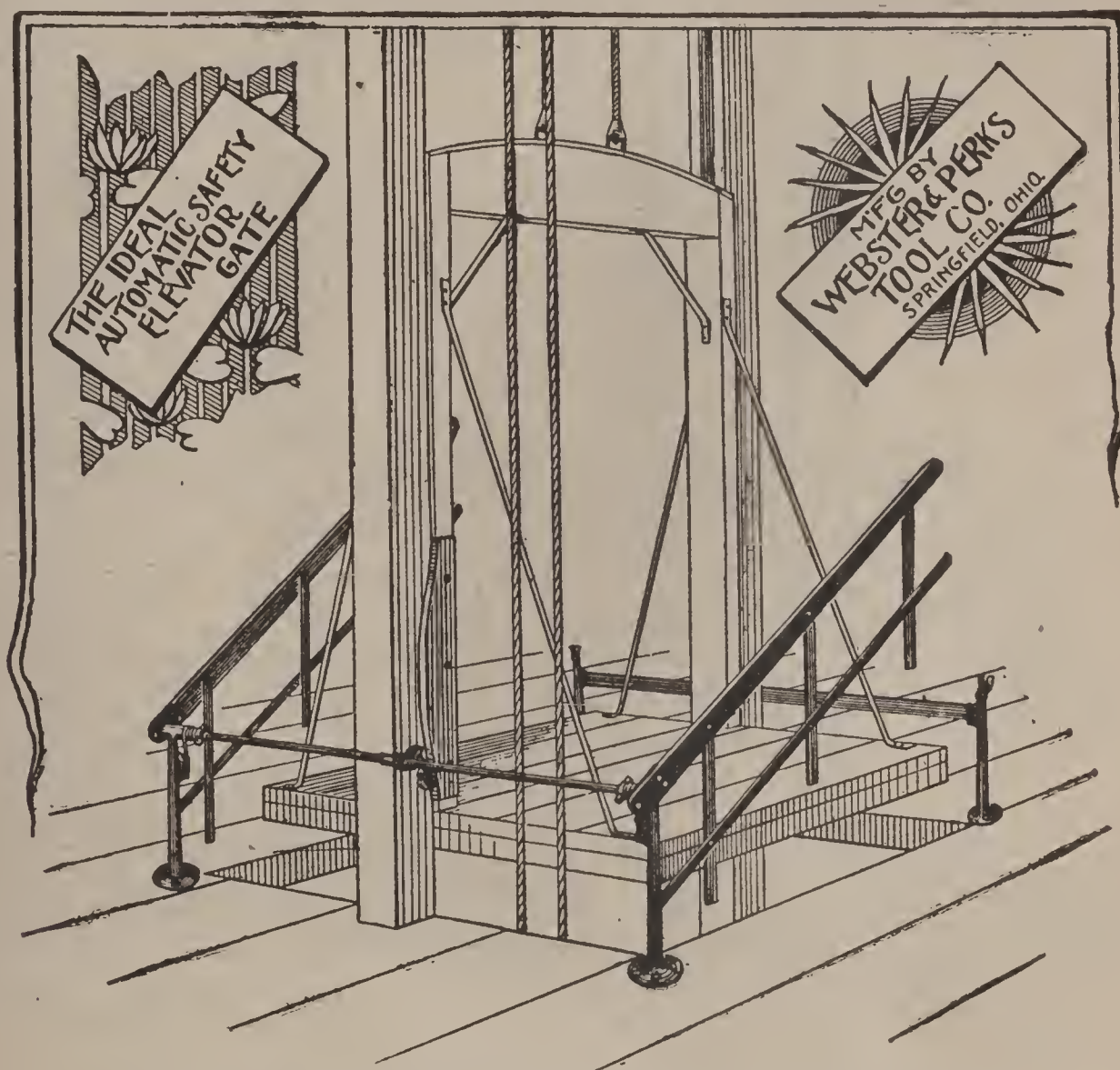


CUT No. 42 — CORRUGATED IRON DOORS

require but little space. When installed they present a very neat appearance and are very easily operated by reason of one section counterbalancing the other. It is easy to keep them closed, and they not only afford

ample protection against accident to life and limb, but are a secure barrier against the spread of fire and thereby combine two equipments in one. These corrugated iron doors are also manufactured by the Richmond Safety Gate Co., and a large number are now in use in this State.

Cut No. 43 illustrates the Ideal Automatic Safety Elevator Guard, manufactured at Springfield, Ohio, by the Webster & Perks Tool Co. This gate is self-opening and self-closing. Open when elevator platform is at the floor and always closed when elevator is away. It is very neat in appearance, being made largely of iron and steel. Any carpenter can place it in position in a very short time.



CUT No. 43 — IDEAL AUTOMATIC SAFETY GATE.

Cut No. 44 illustrates the Warner Patent Automatic Closing Elevator Gate. Gate is of a neat pattern, made of hard wood and strong and substantially put together. The gate is suspended by sash cord and counterbalanced. Counterbalance is run in a column on either side of hatch. The automatic closing attachment consists of a swinging bar, to one end is fastened a hard wood roller, to the other a cast iron dog or shoe. When the gate is raised, this cast iron shoe holds the gate up, and when the platform leaves the floor to go either up or down, the shoe is released and the gate closes. The shoe is never in position to hold the gate open without the platform is at the floor landing, thus insuring a constant closed hatchway, unless the platform is at the land-

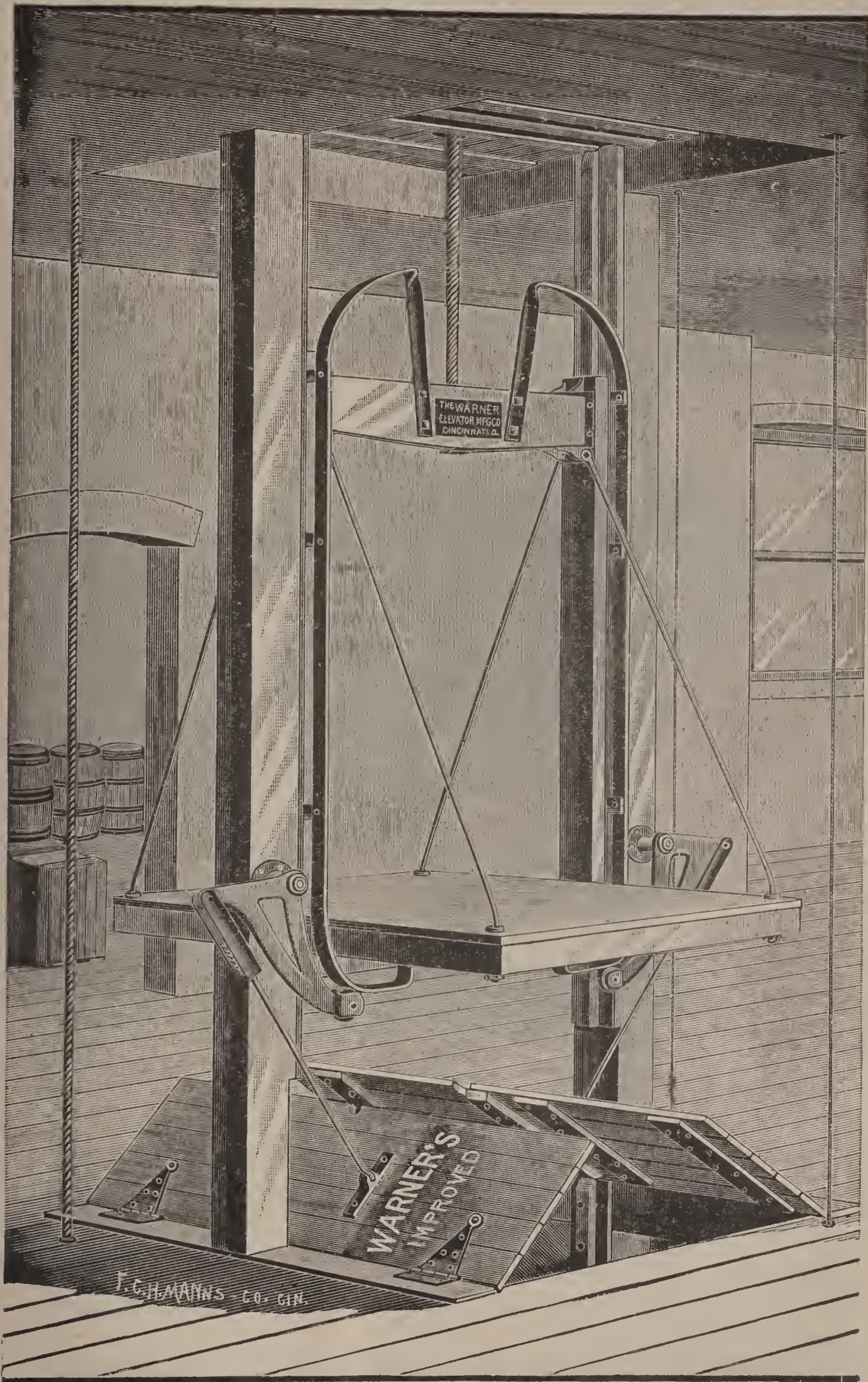
ing. This gate can be attached to almost any elevator and is manufactured by the Warner Elevator Manufacturing Co., of Cincinnati.

Cut No. 45 illustrates the Warner Automatic Hatch Doors or covers in operation in connection with a power freight elevator. The automatic attachment is simple in construction, the doors are made light in weight, but strong and substantial, and swing on heavy steel hinges. To the



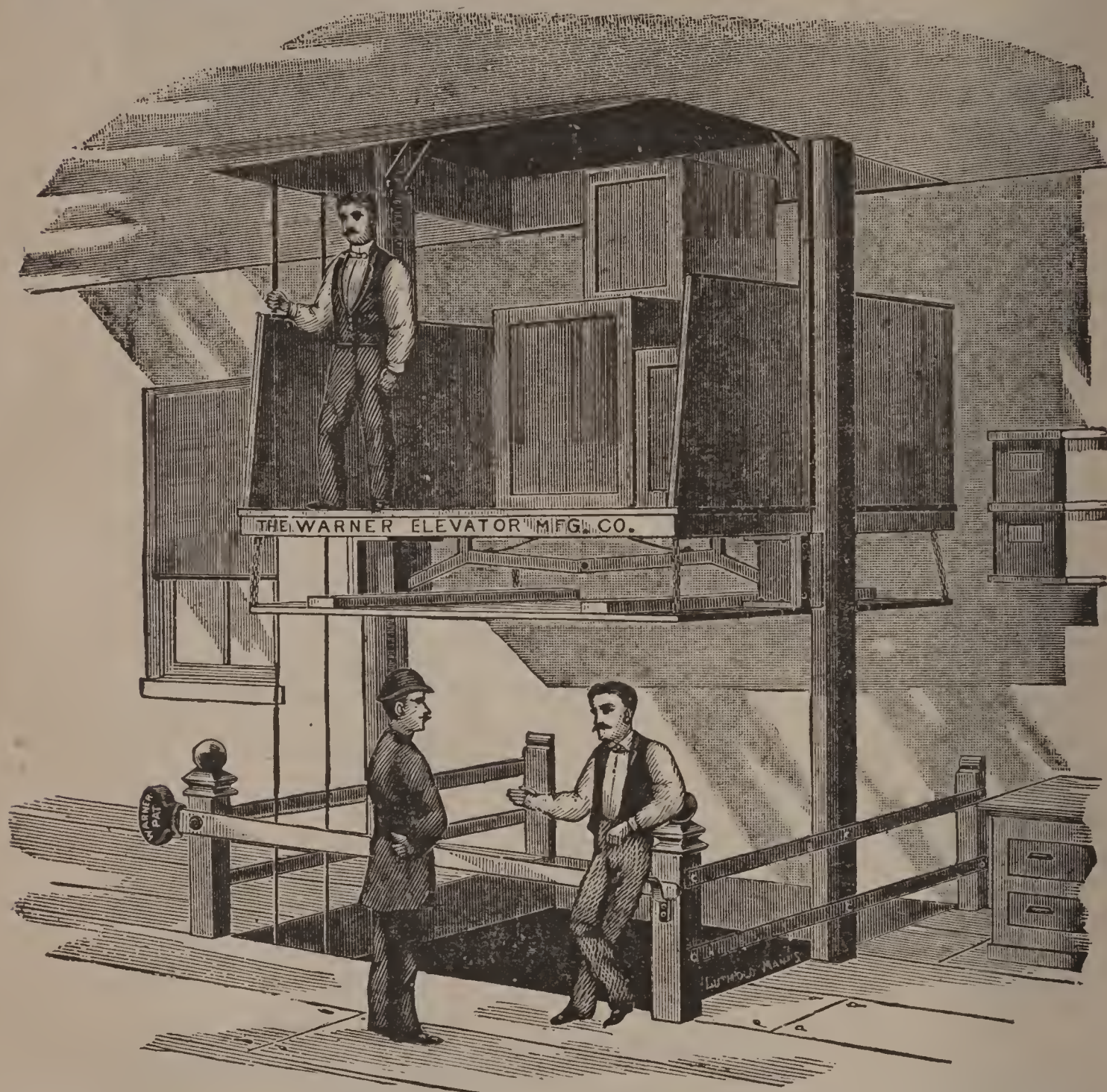
CUT No. 44 — WARNER PATENT AUTOMATIC GATE.

elevator platform is fitted the heavy wrought iron bow which raises the doors when the elevator is ascending and closes it when descending. The levers are made of gray iron, and are so constructed as to act as a counterbalance for the doors, thereby reducing the amount of power necessary to operate them. The levers are also provided with a steel roller which travels on the bow attached to the platform, while the other end is supplied with a wrought iron yoke to which the connecting rods are attached. The yoke is made adjustable and is provided with a spring to take away any undue pressure from the doors. These doors can be fitted to any make of elevator.



CUT No. 45 — AUTOMATIC HATCH DOORS OR COVERS.

Cut No. 46 illustrates the Warner Climax Under Platform Safety Attachment. This device is so hung to the under side of the platform as to instantly arrest the descent of and locks the platform should any obstruction meet it in its descent. The cut illustrates a man leaning on the hatch-bar or post, and the platform, which is heavily loaded with freight, is descending unobserved by the man engaged with a customer, the device touches him lightly on the head and the platform is instantly



CUT No. 46 — THE CLIMAX UNDER PLATFORM SAFETY ATTACHMENT.

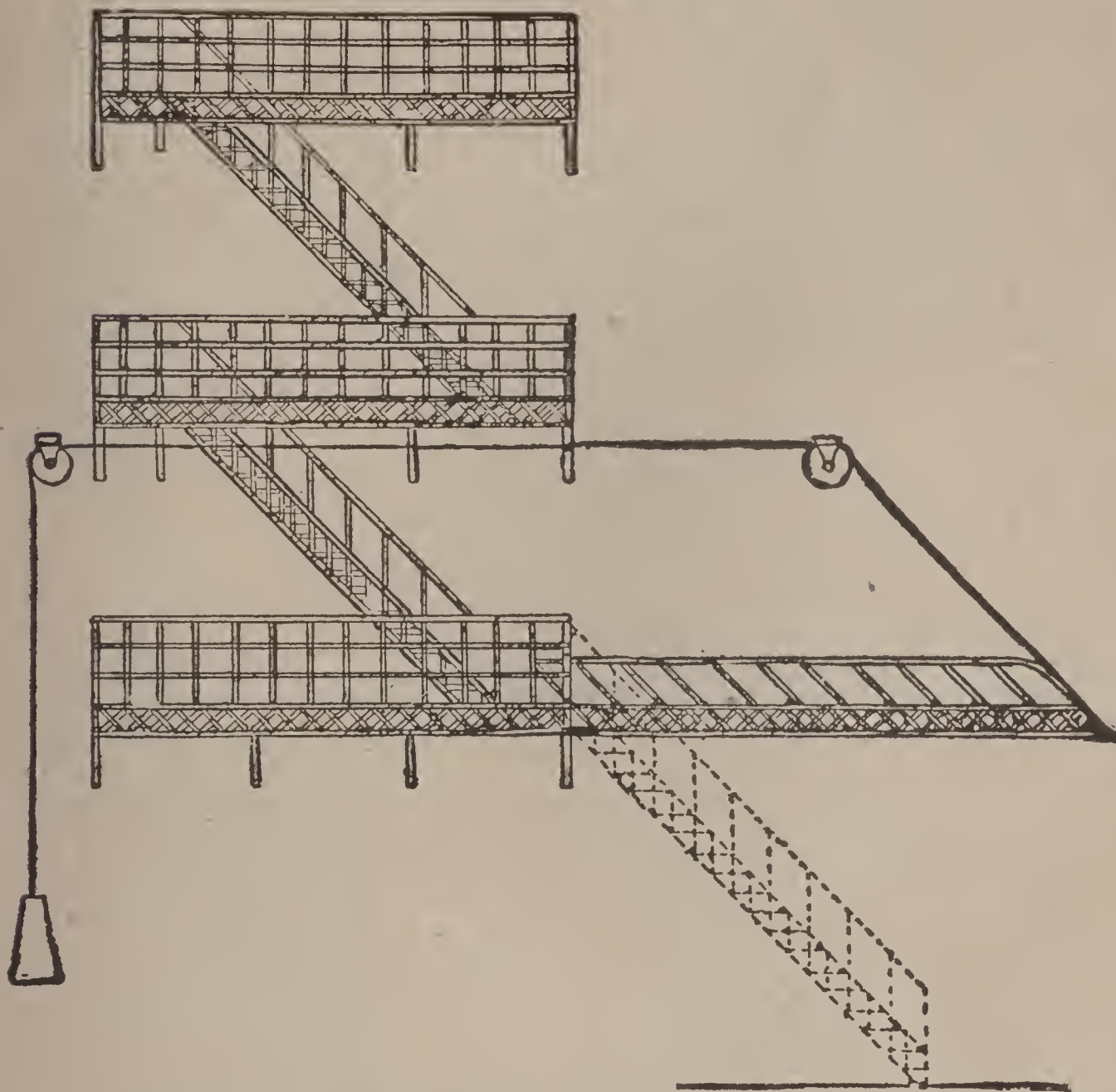
locked. A serious accident might have occurred if this attachment had not been on the platform. No matter how great the load, the platform can be easily stopped. Doubtless this attachment has been the means of averting many serious accidents. This device can be attached to any elevator.

In the absence of the above-named patent device, we would advise all users of freight elevators to suspend a strip of wood by rope hangers from bottom of elevator platform, on open side of shaft, to a distance of eighteen or twenty inches below bottom, strip to be in length the full

width of platform. This strip touching any person who might be in the way of the elevator while descending, would be warned of his danger and could quickly step out of the way. This, of course, would not stop the descent of elevator but would serve as a warning.

FIRE-ESCAPES.

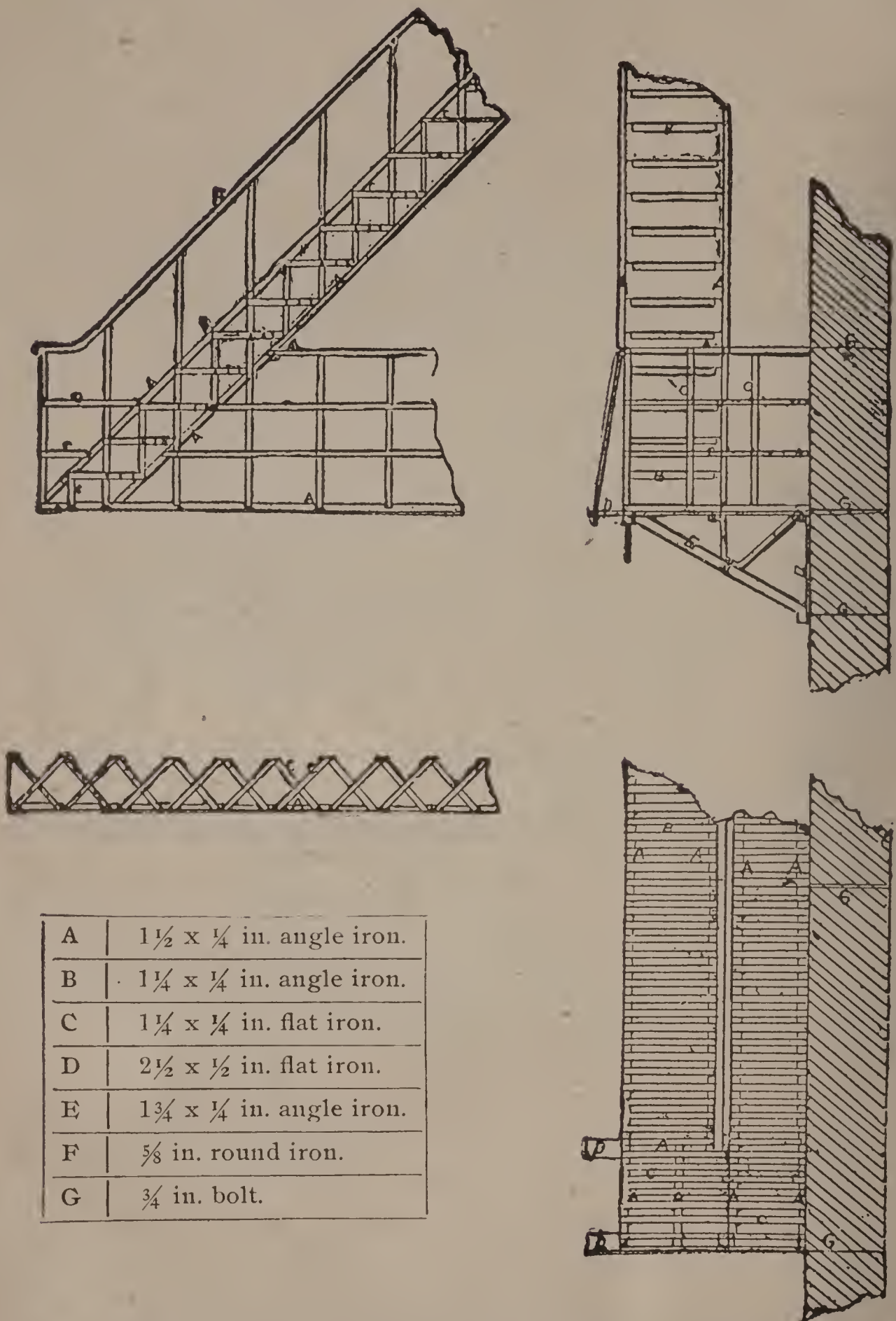
Cut No. 47 illustrates the Standard fire-escape adopted by the Department of Workshops and Factories in 1889. Up to that time there seemed to have been no particular system in the erection of escapes, as wood and



CUT No. 47 — ELEVATION STANDARD FIRE-ESCAPE.

iron ladders were used in promiscuous ways, in most instances being erected and anchored close to the wall, fastenings only leaded in, making a straight run to the ground, which was dangerous to the extreme, in case it became necessary to use them, especially so for the descent of women, and it became necessary for the Department to adopt a uniform system that the owners of all such buildings requiring fire-escapes might be guided by specifications that would insure the erection of such means of escape as would provide safe and speedy egress for those therein employed.

A fire-escape is something that is seldom used, but when it is needed it is needed badly, and should be of a pattern which would afford rapid and safe descent.



CUT No. 48 — DETAILS STANDARD FIRE-ESCAPE.

The elevation shows a balcony at each floor forty-five inches wide with a stairway twenty-one inches wide in the clear, eight-inch rise and eight-inch tread between each balcony, and from the first balcony above the ground there is a drop stairway attached, held up by counterbalance

weight, preventing unauthorized persons from ascending; but should it be necessary to descend the escape a slight weight on the stairs will drop them in position ready for use. This drop stairway may be substituted by a stationary stairway extending from balcony to within eight or ten feet of the ground to a landing two or three feet long, resting on a bracket solidly anchored through wall with a six-inch washer and nut, and at this landing a ladder may be provided twenty-one inches wide and of sufficient length to reach the ground at an easy angle, ladder to be supported by counterbalance weight so as to be easily thrown in position for descent. It will be noticed that the illustration of elevation does not show filling-in between top hand-rail of stairway and risers. This must be filled in with one strip of one and one-fourth by one-fourth inch flat iron.

When an order is issued for the erection of a fire-escape, specifications accompany the order (which will be found following immediately after details and illustration), and if followed there can be no mistake made, and when escape is completed it is one such as any man, woman or child can descend with safety.

Cut No. 48 shows every piece of iron in the Standard escape, how it should be constructed, and specifies the kind and size of material for each piece used, even to the rivets.

There are no patents on this escape and the specifications are so plain, each part being placed under its own particular heading so as to be easily referred to without reading the entire specification, that it can be manufactured by any fire-escape or architectural iron work manufacturer.

One commendable feature about this adopted system is that it insures uniformity in the erection of fire-escapes in our State and permits of no discrimination. Many escapes can be seen throughout Ohio erected after this pattern, by the order of this Department, and the design and construction seems to be satisfactory to those who have been directed to place them.

SPECIFICATIONS AND MATERIALS

To be used in the construction of outside balcony stairway fire-escapes for buildings three or more stories in height, used for workshop and factory purposes in the State of Ohio, and for other buildings coming under the jurisdiction of this Department:

1. BALCONY.

There must be a balcony forty-five (45) inches wide at each floor above the ground, balconies to take in two or more windows; balcony floor must be constructed with four (4) one and one-half by one-fourth ($1\frac{1}{2} \times \frac{1}{4}$) inch angle-iron stringers, resting on brackets not to be placed to exceed eight (8) feet apart; there must be one and one-fourth by one-fourth ($1\frac{1}{4} \times \frac{1}{4}$) inch flat iron strips riveted to the one and one-half by one-fourth ($1\frac{1}{2} \times \frac{1}{4}$) inch angle-iron floor stringers, strips to be placed so as not to exceed one and one-half ($1\frac{1}{2}$) inches apart, which shall form the floor.

2. LATTICE TRUSS FOR BALCONY.

There must be a lattice truss riveted to the outside floor stringer, with a stringer on the bottom of one and one-half by one-fourth ($1\frac{1}{2} \times \frac{1}{4}$) inch angle-iron, with one and one-fourth by one-fourth ($1\frac{1}{4} \times \frac{1}{4}$) inch flat iron pieces, formed into a lattice or truss, the lattice truss to be dropped down below the balcony floor twelve (12) inches, which will make balcony rigid.

3. HAND-RAIL FOR BALCONY.

There must be a top or hand-rail for each balcony which must be three (3) feet high from balcony stringer, made of one and one-fourth by three-sixteenths ($1\frac{1}{4} \times \frac{3}{16}$) inch angle-iron.

The filling-in between the hand-rails and stringers of the balcony must be made of one and one-fourth by one-fourth ($1\frac{1}{4} \times \frac{1}{4}$) inch flat iron, two (2) bars between the top or hand-rail and the floor stringers.

The top or hand-rail of the balcony must have a three-fourths ($\frac{3}{4}$) inch bolt securely fastened to the end, which must pass through the wall and fasten on the inside with a four (4) inch washer and three-fourths ($\frac{3}{4}$) inch nut, both to be let into wall so as to form a smooth surface when plastered over.

The top rail of balcony shall be braced with a five-eighths ($\frac{5}{8}$) inch round iron brace-rod securely riveted to top rail then passing down through the outer end of the top cord of the main bracket and fasten with nut both on upper and lower sides.

4. BRACKETS FOR BALCONIES.

The main or the top cord of the bracket shall be made from two and one-half by one-half ($2\frac{1}{2} \times \frac{1}{2}$) inch flat iron, extending out eight (8) inches beyond the balcony, with a seven-eighths ($\frac{7}{8}$) inch bolt welded on the back end, which shall pass through the wall and fasten on the inside with a six (6) inch washer and a seven-eighths ($\frac{7}{8}$) inch nut, washer and nut to be let into wall so as to form a smooth surface when plastered over; main cord of the bracket must be braced with a brace made from two and one-half by one-half ($2\frac{1}{2} \times \frac{1}{2}$) inch flat iron into the main angle-brace, which is made of one and three-fourths by one-fourth ($1\frac{3}{4} \times \frac{1}{4}$) inch angle-iron, and must extend to the outer side of the balcony.

5. STAIRWAY.

There must be a flight of stairs between each balcony, and from first balcony above the ground a flight of stairs to extend to within ten (10) feet of the ground.

The stairs must be constructed with two (2) stringers each, made with a top and bottom cord of one and one-fourth by three-sixteenths ($1\frac{1}{4} \times \frac{3}{16}$) inch angle-iron, with a rise-rail of one and one-fourth by one-fourth ($1\frac{1}{4} \times \frac{1}{4}$) inch flat iron, and a tread-rail of one and one-fourth by three-sixteenths ($1\frac{1}{4} \times \frac{3}{16}$) inch angle-iron, formed into a lattice of sufficient width to give an eight (8) inch tread and an eight (8) inch rise step, so that the outer edge of the step will be the center of the lattice, and the one and one-fourth by three-sixteenths ($1\frac{1}{4} \times \frac{3}{16}$) inch angle tread-rail shall also form the support for the steps.

The steps must be formed of one and one-fourth by three-sixteenths ($1\frac{1}{4} \times \frac{3}{16}$) inch angle-iron, three (3) pieces to each step.

The stairs in no case shall be less than twenty-four (24) inches wide from outside to outside of stringers, and shall be placed on the outside of balcony, and the balcony, including stairs, must not be less than three (3) feet nine (9) inches wide.

The stairs shall have a one-half ($\frac{1}{2}$) inch round iron anchor rod, riveted to the top cord of the inside stair stringer about central between balconies, which shall anchor in the wall, to prevent vibration.

The last flight of stairs from first balcony above the ground shall come down to within ten (10) feet of the ground, there to have a landing of not less than two (2) feet, which shall rest on a bracket as per above bracket specifications, bracket to be anchored through wall with six (6) inch washer and nut on inside (or hung on stirrups from balcony stringers above); at landing there shall be an iron ladder, twenty-one (21) inches wide and of sufficient length to reach the ground at an easy angle, which must be hinged and held up by counter-balance weights.

6. HAND-RAILS AND BALUSTERS FOR STAIRS.

The stairs must be provided with a hand-rail on each side, constructed of one and one-fourth by three-sixteenths ($1\frac{1}{4} \times \frac{3}{16}$) inch angle iron, and each alternate one and one-fourth by one-fourth ($1\frac{1}{4} \times \frac{1}{4}$) inch flat iron rise-rail shall run through and rivet to the hand-rail forming the balusters for stairs; the filling-in between hand-rail and stairs shall be one (1) strip of one and one-fourth by one-fourth ($1\frac{1}{4} \times \frac{1}{4}$) inch flat iron.

The hand-rails for the stairs shall be braced central between balconies with a bracket made out of one and one-half by three-eighths ($1\frac{1}{2} \times \frac{3}{8}$) inch flat iron, riveted to top and bottom cord of stair stringers, with a one-half ($\frac{1}{2}$) inch round brace-rod from hand-rails to bracket.

The balusters for the stairs must be made three (3) feet high from the center of the tread, and must run through and fasten on the bottom cord of the stair stringer.

7. MISCELLANEOUS.

The whole must be thoroughly riveted together at every joint with suitable soft iron rivets, except where the stairs fasten at top and bottom to balconies, which shall be bolted with one-half ($\frac{1}{2}$) inch iron bolts well riveted over, after being drawn up to their proper place.

Everything shall be made in a thorough and workmanlike manner, in accordance with the above specifications, all to be given two coats of the best weather paint, one before being erected and one after, and the whole to be constructed subject to the approval of the Chief Inspector of Workshops and Factories.

Any material variation from the above specifications will not be accepted.

This pamphlet is not published for the purpose of advertising devices of manufacturers, but as a guide to persons owning and operating machinery in shops and factories. There are hundreds of devices manufactured, not mentioned in this pamphlet, just as efficient and practical, but it would make an endless publication to mention all, therefore the reason for presenting but a few of them is apparent.

COLUMBUS, OHIO, September 25, 1902.

LAWS OF OHIO.

DEPARTMENT OF INSPECTION OF WORKSHOPS,
FACTORIES AND PUBLIC BUILDINGS.

TO THE MANUFACTURERS,
Owners or Managers of Workshops and Factories, and Others Coming
under the Jurisdiction of this Department.

I wish to call your attention to the importance of the following laws governing and regulating the Department of Inspection of Workshops and Factories of this State.

These laws should be carefully read, and you are respectfully requested and urged to take immediate action looking to a strict adherence thereto.

A close observance of the law will lessen the labor of the Department and add materially to the facility of our work.

Very respectfully,

CHIEF INSPECTOR.

LAWS

GOVERNING DEPARTMENT OF INSPECTION OF WORKSHOPS AND FACTORIES.

Bates' Annotated Ohio Statutes Sectional Numberings.

WORKSHOPS AND FACTORIES.

DISTRICTS; APPOINTMENT OF INSPECTORS, THEIR DUTIES, ETC.

SECTION 2573a. [State divided into districts for the inspection of workshops and factories.] For the purpose of facilitating an efficient and thorough inspection of workshops and factories throughout the state of Ohio, and to provide an adequate inspecting force therefor, the state is hereby divided into three inspection districts, as follows: The counties of Cuyahoga, Lake, Geauga, Ashtabula, Trumbull, Portage, Summit, Medina, Lorain, Wayne, Stark, Mahoning, Columbiana, Holmes, Tuscarawas, Carroll, Jefferson, Harrison, Coshocton, Belmont, Ashland, Richland, Huron, Erie, Crawford, Seneca, Sandusky, Ottawa, Lucas, Wood, Henry, Fulton, Defiance, Williams, Wyandot, Hancock, Putnam and Paulding, shall compose the first district. The counties of Franklin, Delaware, Morrow, Marion, Knox, Union, Madison, Fayette, Pickaway, Ross, Pike, Scioto, Licking, Muskingum, Guernsey, Noble, Monroe, Washington, Morgan, Perry, Fairfield, Hocking, Athens, Vinton, Meigs, Jackson, Gallia and Lawrence, shall compose the second district. The counties of Hamilton, Clermont, Brown, Adams, Highland, Clinton, Warren, Butler, Green, Clark, Montgomery, Preble, Miami, Champaign, Darke, Logan, Shelby, Mercer, Hardin, Allen, Auglaize and Van Wert, shall compose the third district. (Passed April 29, 1885; O. L. Vol. 82, pp. 178, 179; S. & B. R. S., Vol. 1, p. 688; Bates' A. O. S.; Vol. 1, p. 1359.)

SECTION 2. [Appointment of inspectors.] The governor shall appoint one chief inspector, by and with the advice and consent of the senate, who, with the approval of the governor, shall appoint three district inspectors. The chief inspector and district inspectors shall be competent

and practical mechanics. The chief inspector shall hold his office for a term of four years and shall have his office in the state house, where shall be kept the records of his office, and the district inspectors shall hold their office for a term of three years from the first day of May after their respective appointments and until their successors are appointed and qualified; the first appointment hereunder shall be made within thirty days from the passage of this act; in case of the resignation, removal or death of the chief inspector, the vacancy shall be filled in the manner above provided for the original appointments for the unexpired term only of the position so made vacant. (Passed April 29, 1885; O. L. Vol. 82, p. 179; S. & B. R. S. Vol. 1, p. 668; Bates' A. O. S. Vol. 1, p. 1359.)

SECTION 2573a Sec. 3. [**Powers and duties of inspectors.**] The chief inspector and district inspectors shall give their whole time and attention to the duties of their offices respectively; they shall have the power of notary, to administer oaths and to take affidavits in matters connected with the enforcement of the provisions of all laws coming under the jurisdiction of the department of the inspection of workshops, factories and public buildings. It shall be their duty to visit all shops and factories in their respective districts as often as possible, to see that all the provisions and requirements of this act are strictly observed and carried out; they shall carefully inspect the sanitary condition of the same, and it shall be their duty to examine the system of sewerage in connection with said shops and factories, the situations and conditions of water-closets or urinals in and about such shops and factories and also the system of heating, lighting and ventilating all rooms in such shops and factories where persons are employed at daily labor; also as to the means of exit from all such places in case of fire or other disaster; and also all belting, shafting, gearing, elevators, drums and machinery of every kind and description in and about such shops and factories, and see that the same are not located so as to be dangerous to employes when engaged in their ordinary duties, and that the same so far as practicable, are securely guarded and that every vat, pan or structure filled with molten metal or hot liquid shall be surrounded with proper safeguards for preventing accident or injury to those employed at or near them; and that all such are in proper sanitary condition, and are adequately provided with means of escape in case of fire or other disaster. Passed May 2, 1902; O. L. Vol. 95, p. 338.)

SECTION 2573a2. [**Appointment of additional inspectors.**] That authority be and is hereby given to appoint eight additional district inspectors; and they shall be appointed in the same manner and possess the same qualifications, and whose term of office shall be the same, and on the same conditions, and receive the same compensation as the three district inspectors authorized by said section 2573a, including sections two and three thereof. The chief inspector may assign said additional inspectors for service in the present districts, or change and make new

and smaller districts, and make such assignments of all the district inspectors as the good of the service may require., (Passed March 23, 1892; O. L. Vol. 89, p. 133; Bates' A. O. S. Vol. 1, p. 1360.)

SECTION 2573b. [Inspector to have free access to shops and factories; proof of failure to comply with order; liability of proprietor.] The said inspector shall have entry into all shops and factories, including all public institutions of the state which have shops and factories, or either, at any reasonable time, and it shall be unlawful for the proprietors, agents or servants in such factories or shops to prevent, at reasonable hours, his entry into such shops and factories for the purpose of such inspection. And proof of the failure of the proprietor of any shop or factory to make the alteration or furnish the safeguards ordered by the inspector, within the time required by law, shall be deemed prima facie evidence of negligence and shall render such proprietor liable for any injury sustained by reason of such failure to make such alterations or furnish such safeguards. (Passed April 13, 1898; O. L. Vol. 93, p. 113; Bates' A. O. S. Vol. 1, pp. 1360-61.)

SECTION 2573c. [Notice of necessary alterations or additions; penalty for not making same; record of examinations; rules governing inspectors; salaries, expenses, etc.] That said inspectors, if they find upon such inspection that the heating, lighting, ventilation or sanitary arrangement of any shop or factory is such as to be injurious to the health of persons employed or residing therein, or that the means of egress in case of fire or other disaster is not sufficient, or that efficient means for extinguishing fire is not provided on each floor, or that the belting, shafting, gearing, elevators, drums and machinery in such shops and factories are located so as to be dangerous to employes, and not sufficiently guarded, or that the vats, pans or structures filled with molten metal or hot liquid are not surrounded with proper safeguards for preventing accident or injury to those employed at or near them, shall notify the owners, proprietors or agents of such shops or factories, or report the same to the chief inspector, who shall notify, in writing, the owners, proprietors or agents of such shops or factories by mailing such notification to the last known address of such owners, proprietors or agents to make the alterations or additions necessary without delay; provided, however, that for such of the alterations and additions ordered as may be of such nature as to make it impossible to comply with immediately, the chief inspector may grant from fifteen (15) to thirty (30) days' time from date of first notification to such owners, proprietors or agents, in which to make such alterations and additions, and if such alterations are not made within the limit of time granted, such owners, proprietors or agents so notified, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not more than five hundred (500) dollars, and not less than fifty (50) dollars, and ten (10) dollars additional for each day after such conviction, until such alterations

and additions necessary have been made, which fine shall be paid into the treasury of the county in which conviction is had. The district inspectors shall make a record of all examinations of shops and factories in their respective districts, showing the date when made, the condition in which such shops and factories are found, and what changes were ordered, the number of shops and factories in their respective districts, the number of men, women and children employed in each shop or factory, together with all such other facts and information of public interest, concerning the condition of such shops and factories, as they may think useful and proper, which record shall be filed in the office of the chief inspector every week, and so much thereof as may be of public interest to be included in his annual report. The chief inspector shall issue such instructions, make such rules and regulations for the government of the district inspectors not inconsistent with the powers and duties vested in them by law, as shall secure uniformity of action and proceedings throughout the different districts. The salary of the chief inspector shall be two thousand dollars (\$2,000) per annum, and the district inspectors one thousand dollars (\$1,000) each per annum, which salaries and all necessary traveling expenses incurred by said inspectors in the discharge of their official duties, shall be paid out of the treasury of the state, from any fund therein not otherwise appropriated, on the warrant of the auditor, on the presentation to him of the proper vouchers. (Passed March 3, 1898; O. L. Vol. 93, pp. 30, 31; Bates' A. O. S. Vol. 1, pp. 1361-62.)

SECTION 2573*d*. [Shops and factories defined; who to make permanent improvements ordered by state inspector.] The term "shops and factories," as used in section 2573*b* and 2573*c* of the Revised Statutes, shall be held to include the following: Manufacturing, mechanical, electrical, mercantile, art and laundrying establishments, printing, telegraph and telephone offices, railroad depots, hotels, memorial buildings, tenement and apartment houses; and in case it is found on inspection under section 2573*c* that the means of egress in case of fire or other disaster is not sufficient in any shop or factory, as defined herein, or when found necessary for cutting through walls or floors for additional exit, or providing additional stairways as exit on the inside or outside of such shops and factories, or where it is necessary for changes or additions for ventilation, sewerage or water-closets, or plumbing in connection with closets or for additional means of lighting by windows or by skylights, or for providing efficient safety-gates at elevator openings, or guarding hatchways, for any hoisting apparatus in floors or outside of any such shops and factories, or for the repair of elevators or gearing, or for the repair of walls, roofs, ceilings, stairways or doors, or any other improvements necessary for the health or safety of employes or persons occupying such shops and factories, such changes or additions being of a permanent and fixed character, and which, after provided, become a permanent fixture and the property of the owner or owners of the building or buildings of such

shops and factories, the owner or agent for the owner of such building shall be required by the state inspector, upon notice and under the penalties of the said section 2573c, to provide the necessary fire-escapes or other changes and additions as are mentioned in this section. (Passed April 18, 1893; O. L. Vol. 90, p. 190; Bates' A. O. S. Vol. 1, pp. 1362-63.)

GUARDING OF MACHINERY IN WORKSHOPS.

SECTION 1. [Protection against injury by machinery.] That owners and operators of factories and workshops, which terms shall mean all manufacturing, mechanical, electrical and mercantile establishments, and all places where machinery of any kind is used or operated, shall take ordinary care, and make such suitable provisions as to prevent injury to persons who may come in contact with any such machinery, or any part thereof; and such ordinary care and such suitable provisions shall include the casing or boxing of all shafting when operating horizontally near floors, or when in perpendicular or other position operating between, from, or through floors, or traversing near floors, or when operating near passage-way, or directly over the heads of employes; the enclosure of all exposed cogwheels, flywheels, bandwheels, all main belts transmitting power from engine to dynamo, or other kind of machinery, and all openings through floors, through, or in which such wheels or belts may operate, with substantial railing; the covering, cutting off, or countersinking of keys, bolts, set-screws, and all parts of wheels, shafting, or other revolving machinery, projecting unevenly from and beyond the surface of such revolving parts of such machinery; the railing in all unused elevator openings, the placing of automatic gates or floor doors, and the keeping of same in good condition; on each floor from which and where on each side, or sides, of elevator openings, entrance to the elevator carriage is obtained, the frequent examination and keeping in sound condition of ropes, gearing, and other parts of elevators, the closing of stair openings on all floors, except where access to stairs is obtained, and the railing of stairs between floors, the lighting of hallways, rooms, approaches to rooms, basements and other places wherein sufficient daylight is not obtainable; the guarding of all saws and other wood-cutting and wood-shaping machinery, providing shifters for shifting-belts, and poles and other appliances for removing and replacing belts on single pulleys, and adjusting runways, and staging used for oiling and other purposes, more than five feet from floors with hand-railing, and providing counter shafting with tight and loose pulleys or such other suitable appliances, in each room, separate from the engine room, for disconnecting machinery from other machinery when in operation. (Passed March 20, 1900; O. L. Vol. 94, p. 42.)

SECTION 2. [Penalty.] Any owner or operator of a factory or workshop, as defined in section one of this act, who violates any of the provisions of said section, shall be fined for the first offense not exceeding one hundred dollars, and for every subsequent offense not less than fifty

dollars nor more than five hundred dollars. (Passed March 20, 1900; O. L. Vol. 94, p. 42.)

SECTION 3. [**Power of inspector of workshops and factories to enforce this act.**] The chief inspector or any district inspector of workshops and factories, who shall obtain knowledge of violation of the provisions of section one of this act, is hereby authorized whenever he may deem it advisable to paste upon any machine, device, elevator, utensil, structure or machinery, or part of machinery of any kind, a notice stating that such machine, device, elevator, structure or machinery, or part of machinery of any kind, is dangerous to use or operate, and that operatives or employees are liable to injury by its use or operation, and such notice shall designate and describe the alteration or other change necessary to be made in order to insure safety of operation, the date of inspection and the time allowed for such alteration or change to be made, and no such machine, device, elevator, utensil, structure or machinery of any kind, shall be used or operated after such notice is posted thereon, until such change or alteration is made to the satisfaction of the inspector having made such recommendation. (Passed March 20, 1900; O. L. Vol. 94, p. 43.)

SECTION 4. [**Penalty for violation of section three of this act.**] Any owner or operator of a factory or workshop who violates any of the provisions of section three of this act shall be fined for the first offense not less than twenty-five nor more than one hundred dollars, and for every subsequent offense, not less than fifty nor more than five hundred dollars. (Passed March 20, 1900; O. L. Vol. 94, p. 43.)

SECTION 5. [**Who shall prosecute.**] It shall be the duty of the chief inspector and any district inspector of workshops and factories to prosecute all violations of the provisions of this act. (Passed March 20, 1900; O. L. Vol. 94, p. 43.)

ACCIDENTS IN WORKSHOPS, ETC.

(SECTION 2573-1) Sec. 1. [**Manufacturers to report certain accidents to chief inspector Workshops.**] That it shall be the duty of all manufacturers of the state to forward by mail to the chief inspector of workshops and factories at Columbus, a report of each and every serious accident resulting in bodily injury to any person which may occur in their establishment, giving particulars of the same as fully as can be ascertained, upon blanks which shall be furnished by the chief inspector of workshops and factories. If death shall result to any employe from any such accident, said report shall contain the age, name, sex and employment of the deceased, whether married, the number of persons, if any, deprived of support in consequence thereof, and the cause of accident, if known. If the accident has caused bodily injury of such a nature as to prevent the person injured from returning to his or her employment within six or more days after the occurrence of the

accident, then the report shall contain the age, name, sex, and employment of the disabled, the nature and extent of the injury received, how caused, if known, how long continually disabled, loss of time and wages therefrom, and, if possible, the expense thereby incurred in full. (Passed March 21, 1888; O. L. Vol. 85, pp. 99, 100; S. & B. R. S. Vol. 2, p. 2242; Bates' A. O. S. Vol. 1, p. 1363.)

(SECTION 2573-2) Sec. 2. [**Report of accidental death or injury penalty for failure; "manufacturer" defined.**] That any manufacturer who shall fail to comply with the requirements of this act in each case of death by accident within seven days thereafter, and in each case of injury by accident within thirty days thereafter, shall be deemed guilty of a misdemeanor, and on conviction thereof before any court of competent jurisdiction, shall be fined in any sum not less than ten dollars nor more than fifty dollars. The term manufacturer, as applied in section one and in section two of this act, shall be held to mean any person who, as owner, manager, lessee, assignee, receiver, contractor, or who, as agent of any incorporated company makes or causes to be made or who deals in any kind of goods or merchandise, or who owns, controls or operates any street railway or laundrying establishment, or is engaged in the construction of buildings, bridges or structures, or in loading or unloading vessels, or cars, or moving heavy materials, or operating dangerous machinery, or in the manufacture or use of explosives. (Passed March 9, 1898; O. L. Vol. 93, p. 43; Bates' A. O. S. Vol. 1, p. 1363.)

(SECTION 2573-3) Sec. 3. [**Chief inspector to supply blanks.**] It shall be the duty of the chief inspector of workshops and factories to supply all blanks necessary to make said reports, as required in this act and to prosecute all violations of this act, when the same shall come to his knowledge; provided, that the furnishing of said blanks shall be a condition precedent to prosecution in any case. (Passed March 21, 1888; O. L. Vol. 85, p. 100; S. & B. R. S. Vol. 2, p. 2242; Bates' A. O. S. Vol. 1, p. 1364.)

MINORS IN WORKSHOPS.

ACT RELATING TO UNLAWFUL RETENTION OF WAGES FROM MINORS BY EMPLOYERS.

SECTION 4364-65. [**Unlawful to retain wages from minors.**] That it shall be unlawful for any person, company or corporation doing business in the state of Ohio, to retain or withhold from an employe, male or female, who is a minor, the wages or compensation, or any part thereof, agreed to be paid to such employe, and due to the same for work performed or services rendered, because of presumed negligence or failure to comply with rules or for breakage of machinery, or for alleged incompetency to produce work or to perform labor in accordance with any standard of merit set up; nor shall any firm, corporation, or individual, as aforesaid, receive any guarantee, bonus, or money deposit, or any other form of

security, in order to obtain or to secure for any such minor employment, or to insure faithful performance of labor, or to guarantee strict observance of rules, or to make good any losses which may be ascribed or charged to the incompetence, negligence or inability of such minor employe. (Passed March 1, 1893; O. L. Vol. 90, p. 56; Bates' A. O. S. Vol. 2, p. 2429.)

SECTION 4364-66. [**Provisions governing employment of minors.**] That no person, company or corporation, as aforesaid, shall give employment to any minor, without agreeing with said minor what wages or compensation he or she shall be entitled to receive per day, week, month or year or per piece for work performed; and written evidence of such agreement shall be furnished to such minor, and on or before each pay day a statement of earnings due, and the amount thereof to be paid to him or her on such pay day shall be given to such minor, and no subsequent change shall be made in the wages or compensation of such minor without notice of the same being given to him or her at least twenty-four hours previous to its going into effect, and when such change is effected written agreement shall be given as in the first instance to said minor employe. (Passed May 12, 1902; O. L. Vol. 95, p. 598.)

SECTION 4364-67. [**Penalty for violation; duties inspector workshops.**] Any person or officer, or agent of any company or corporation, who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction, be fined in any sum not exceeding two hundred dollars, or imprisonment in the county jail for a period not exceeding six months, or both, at the discretion of the court; and it is hereby declared to be the duty of the state inspector of workshops and factories to see that the provisions of this act shall be enforced. (Passed March 1, 1893; O. L. Vol. 90, p. 56; Bates' A. O. S. Vol. 2, p. 2429.)

ACT PREVENTING EMPLOYMENT OF MINORS UNDER SIXTEEN YEARS OF AGE
AT DANGEROUS MACHINERY, ETC.

(SECTION 6986-1) Sec. 1. [**Preventing employment of children in certain occupations.**] That no child under the age of sixteen years shall be employed by any person, firm or corporation in this state, at employment whereby its life or limb is endangered, or its health is likely to be injured, or its morals may be depraved by such employment. (Passed April 8, 1890; O. L. Vol. 87, p. 161; Bates' A. O. S. Vol. 2, p. 3376.)

(SECTION 6986-2) Sec. 2. [**Penalty for violation.**] Any person, firm or corporation in this state, who wilfully causes or permits the life or limb of any child under the age of sixteen years to be endangered, or its health to be injured, or its morals to become depraved from and while actually in their employ, or who wilfully permits such child to be

placed in such a position or to engage in such employment that its life or limb is in danger, or its health likely to be injured, or its morals likely to be impaired by such position or employment, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than ten (10) dollars nor more than fifty (50) dollars, or imprisonment not less than thirty nor more than ninety days for each and every offense. (Passed April 8, 1890; O. L. Vol. 87, p. 161; Bates' A. O. S. Vol. 2, p. 3376.)

(SECTION 6986-3) Sec. 3. [Duty of inspector.] It shall be the duty of the state inspector of workshops and factories to enforce the provisions of this act. (Passed April 8, 1890; O. L. Vol. 87, p. 161; Bates' A. O. S. Vol. 2, p. 3376.)

As the foregoing act relative to the employment of minors under the age of sixteen years does not designate what occupations are dangerous to life, limb and health, or name employment which would be likely to deprave the morals of such minors, all persons employing minors will be guided by the following:

EMPLOYMENT AT WHICH CHILDREN UNDER SIXTEEN YEARS OF AGE SHALL
NOT BE ENGAGED.

No child under the age of sixteen years shall be employed at sewing belts, or to assist in sewing belts in any capacity whatever; nor shall any such child adjust any belt to any machinery; they shall not oil or assist in oiling, wiping or cleaning machinery; they shall not operate or assist in operating circular or band-saws, wood-shapers, wood-jointers, planers, sandpaper or wood-polishing machinery, emery or polishing wheels used for polishing metal, wood-turning or boring machinery, stamping machines in sheet metal and tinware manufacturing, stamping machines in washer and nut factories, operating corrugating rolls, such as are used in roofing or wash-board factories; nor shall they be employed in operating any steam boiler, steam machinery or other steam generating apparatus; they shall not operate or assist in operating dough brakes or cracker machinery of any description; wire or iron straightening machinery; nor shall they operate or assist in operating rolling mill machinery, punches or shears, washing, grinding or mixing mills, or calendar rolls in rubber manufacturing; nor shall they operate or assist in operating laundrying machinery; nor shall children be employed in any capacity in preparing composition for matches, or dipping, dyeing, or packing matches; they shall not be employed in any capacity in the manufacture of paints, colors or white lead; nor shall they be employed in any capacity whatever in operating or assisting to operate any passenger or freight elevator; nor shall they be employed in any capacity whatever in the manufacture of goods for immoral purposes, or any other employment that may be considered dangerous to their lives and limbs, or where their health may be

injured or morals depraved; nor shall females under sixteen years of age be employed in any capacity where such employment compels them to remain standing constantly. — [CHIEF INSPECTOR.]

ACT REGULATING AGE AND NUMBER HOURS MINORS MAY BE EMPLOYED PER DAY OR WEEK, ETC.

SECTION 6986-7. [Unlawful employment of minors.] No child under the age of fourteen years shall be employed in any factory, workshop, mercantile or other establishment, directly or indirectly at any time; and no such child under said age shall be employed in any other manner, whether it be for compensation or otherwise, when the public schools in which district such child resides are in session. It shall be the duty of every person employing minors under the age of eighteen years to keep a register in which shall be recorded the name, birthplace, age and place of residence of every minor employed by him under the age of eighteen years. (Passed May 12, 1902; O. L. Vol. 95, p. 598.)

SECTION 6986-8. [Night employment; number hours employment; noon meal; notices posted by employers.] No boy under sixteen years of age and no girl under eighteen years of age, shall be employed at any work at night time later than seven o'clock in the evening nor earlier than six o'clock in the morning, and no minor under eighteen years of age shall be employed in any of the places named in section 6986-7 of the Revised Statutes of Ohio for a longer period than ten hours in one day, nor more than fifty-five hours in one week; and every such minor under eighteen years of age shall be entitled to no less than thirty minutes for meal time at noon, but such meal time shall not be included as part of the work hours of the day; and every employer shall post in a conspicuous place in every room where such minors are employed a printed notice stating the maximum number of work hours required in one week, and in each day of the week from such minors, such printed notice to be furnished by the chief inspector of workshops and factories, and approved by the attorney general. (Passed May 12, 1902; O. L. Vol. 95, pp. 598-599.)

SECTION 6986-9. [Penalty.] Any person or corporation who shall employ any minor contrary to the provisions of this act, or who shall violate any of the provisions thereof, shall upon conviction be fined in any sum not less than twenty dollars nor more than fifty dollars, or imprisoned not less than ten nor more than thirty days. (Passed April 19, 1898; O. L. Vol. 93, p. 124; Bates' A. O. S. Vol. 2, p. 3377.)

SECTION 6986-10. [Duty of inspector of workshops and factories; enforcement of school attendance; fines to be paid into school fund.] It shall be the duty of the inspector of workshops and factories to prosecute all violations of this act, when the same shall come to his knowledge, before competent authority, and the chief and district

inspectors of workshops shall have authority the same as is invested in the truant officer of any school district to enforce school attendance of any child found violating the school laws, or he shall make complaint of such violation to such truant officer, or to the clerk of the board of education in said district; and all fines collected under this act shall inure to the benefit of the school fund of the district where the offense was committed. (Passed April 19, 1898; O. L. Vol. 93, p. 124; Bates' A. O. S. Vol. 2, p. 3377.)

FEMALES IN WORKSHOPS.

(SECTION 4364-69) Sec. 1. [Seats for female employes; how constructed; dressing-rooms and closets; closets not to be placed in basement or cellar; exception; outside closets; inspection.] That every person or corporation employing female employes in any manufacturing, mechanical or mercantile establishments in this state, shall provide a suitable seat for the use of each female employe so employed, and shall permit the use of such by them when they are not necessarily engaged in the active duties for which they are employed, and shall permit the use of such seats at all times when such use would not actually and necessarily interfere with the proper discharge of the duties of such employes, and such seat shall be constructed or adjusted where practicable so as to be a fixture and not obstruct such female when actually engaged in the performance of such duties when such seat cannot be used; and the owner of the building shall provide, on the same floor, or floor immediately above or below, of the building wherein any female persons are employed, suitable and separate toilet and dressing-rooms and water-closets for the exclusive use of such female employes, and where possible, such dressing rooms and water-closets shall be situated together, with one water-closet for every twenty-five females or less, and where there are more than twenty-five there shall be provided an additional water-closet, up to the number of fifty, and above that number in the same ratio; provided, that no such closet for the use of females shall be placed in a basement or cellar, unless such basement or cellar is used for manufacturing, mechanical or mercantile purposes, and females are employed therein; and, provided, further, that such closets, in the same ratio as above mentioned, shall be placed on the outside of such building at a distance not to exceed twenty feet in such cities, towns and villages as are not provided with a system of waterworks; unless such building is provided with a dry closet system such closets to be kept in good sanitary condition at all times. The state inspector of factories and workshops is hereby charged with the duty of seeing that the provisions of this section are observed and enforced. (Passed March 9, 1898; O. L. Vol. 93, p. 36; Bates' A. O. S. Vol. 2, pp. 2429-30.)

(SECTION 4364-70) Sec. 2. [**Penalty.**] Any person or corporation violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction thereof before any court of competent jurisdiction shall be punished by a fine of not less than ten dollars nor more than twenty-five dollars for each offense. (Passed March 9, 1898; O. L. Vol. 93, p. 36; Bates' A. O. S. Vol. 2, p. 2430.)

BAKESHOPS.

(SECTION 4364-71) Sec. 1. [**Drainage, plumbing and ventilation of bakeries.**] All buildings or rooms occupied as biscuit, bread or cake bakeries shall be drained and plumbed in a manner to conduce to the proper healthful and sanitary condition thereof, and constructed with air-shafts, windows or ventilating pipes, sufficient to insure ventilation, such as the chief or district inspector shall direct; and no cellar or basement not now used as a bakery, shall be hereafter used and occupied as a bakery, and a cellar heretofore occupied shall, when once closed, not be reopened, unless the proprietor shall have previously complied with the provisions of this act. (Passed April 21, 1898; O. L. Vol. 93, pp. 159, 160; Bates' A. O. S. Vol. 2, p. 2430.)

(SECTION 4364-72) Sec. 2. [**Wash-rooms, water-closets, earth-closets, privy or ash-pit.**] Every such bakery shall be provided with a proper wash-room and water-closet or closets, apart from the bake-room or rooms where the manufacturing of such food products is conducted; and no water-closet, earth closet, privy, or ash-pit shall be within or communicate directly with a bakeshop, or any bakery for a hotel or public restaurant. (Passed April 21 1898; O. L. Vol. 93, p. 160; Bates' A. O. S. Vol. 2, p. 2430.)

(SECTION 4364-73) Sec. 3. [**Height of room; side walls and ceilings; furniture and utensils.**] Every room used for the manufacture of flour or meal food shall be at least eight feet in height; the side walls of such rooms shall be plastered or wainscoted, ceiling plastered or ceiled with lumber or metal, and if required by the inspector, shall be whitewashed at least once in three months, and the furniture and utensils of such rooms shall be so arranged as to be easily moved, that the furniture and floor may at all times be kept in proper healthful sanitary condition. (Passed April 21, 1898; O. L. Vol. 93, p. 160; Bates' A. O. S. Vol. 2, pp. 2430-31.)

(SECTION 4364-74) Sec. 4. [**Storage of manufactured products.**] The manufactured flour or meal food products shall be kept in perfect dry and airy rooms, so arranged that the floors, shelves, and all other facilities for storing the same can be easily and perfectly cleaned. (Passed April 21, 1898; O. L. Vol. 93, p. 160; Bates' A. O. S. Vol. 2, p. 2431.)

(SECTION 4364-75) Sec. 5. [**Sleeping places.**] The sleeping places for persons employed in a bakery shall be kept separate from

the room or rooms where flour or meal products are manufactured or stored, and the chief inspector or district inspector may inspect such sleeping places, if they are on the same premises as the bakery, and order them cleaned or changed in compliance with sanitary principles. (Passed April 21, 1898; O. L. Vol. 93, p. 160; Bates' A. O. S. Vol. 2, p. 2431.)

(SECTION 4364-76) Sec. 6. [**Chief inspector may issue certificate.**] After the inspection of a bakery has been made and it is found to conform to this act, the chief inspector may issue a certificate to the owner or operator of such bakery, that it is conducted in compliance with all the provisions of this act; but where orders are issued by the inspector to improve the condition of a bakery no such certificate shall be issued until such order and the provisions of this act shall have been complied with. (Passed April 21, 1898; O. L. Vol. 93, p. 160; Bates' A. O. S. Vol. 2, p. 2431.)

(SECTION 4364-77) Sec. 7. [**Additional district inspectors.**] For the purpose of enforcing this act, the chief inspector of workshops and factories shall appoint two additional district inspectors who shall be appointed in the same manner and possess the same qualifications, and whose term of office shall be the same, and on the same conditions and clothed with the same powers, and receive the same compensation as the district inspector authorized by section 2573a including sections two and three, section 2573a-2, 2573b and 2573c Revised Statutes. (Passed April 21, 1898; O. L. Vol. 93, p. 160; Bates' A. O. S. Vol. 2, p. 2431.)

(SECTION 4364-78) Sec. 8. [**Compliance with notice requiring alterations; form and service of such notice.**] The owner, agent or lessee of any property affected by the provisions of this act, shall within thirty days after the service of a notice requiring any alterations to be made in or upon such premises, comply therewith, and such notice shall be in writing and may be served upon such owner, agent or lessee either personally or by mail, and a notice mailed to the last known address of such owner, agent or lessee, shall be deemed sufficient for the purpose of this act. (Passed April 21, 1898; O. L. Vol. 93, pp. 160, 161; Bates' A. O. S. Vol. 2, p. 2431.)

(SECTION 4364-79) Sec. 9. [**Penalty for violations or refusal to comply with requirement of inspector.**] Any person who violates the provisions of this act or refuses to comply with any requirement of the chief or district inspector, as provided herein, shall be guilty of a misdemeanor, and on conviction thereof before any court of competent jurisdiction, shall be punished by a fine of not less than twenty nor more than fifty dollars for the first offense, and not less than fifty nor more than one hundred dollars for the second offence, or imprisonment for not more than ten days, and for the third offense by a fine of not less than two hundred dollars and not more than thirty days imprison-

ment. (Passed April 21, 1898; O. L. Vol. 93, p. 161; Bates' A. O. S. Vol. 2, p. 2431.)

SWEAT SHOPS.

(SECTION 4364-80) Sec. 1. [**Requirements and regulations to which room or apartment where certain goods manufactured must conform.**] That no dwelling or building, or any room or apartment of itself, in, or connected with any tenement or dwelling or other building, shall be used except by the immediate members of the family living therein for carrying on any process of making any kind of wearing apparel, or goods for male or female wear, use, or adornment, or for the manufacture of cigars, cigarettes, or tobacco goods in any form, when such wearing apparel or other goods are to be exposed for sale, or to be sold by manufacturer, wholesaler or jobber, to the trade or by retail, unless such room or apartments shall have been made to conform to the requirements and regulations provided for in this act. (Passed April 27, 1896; O. L. Vol. 92, p. 317; Bates' A. O. S. Vol. 2, pp. 2431-32.)

(SECTION 4364-81) Sec. 2. [**Requirements and regulations in detail; powers and duties of inspector of factories or assistants.**] Each such room or apartment used for the purposes aforesaid, shall be regarded as a workshop or factory, and shall be separate from and have no door, window or other opening into any living or sleeping room of any tenement or dwelling, and no such workshop or factory shall be used at any time for living or sleeping purposes, and shall contain no bed, bedding, cooking or other utensils, except what is required to carry on the work therein; and every such shop or factory shall have an entrance from the outside direct, and if above the first floor shall have a separate and distinct stairway leading thereto, and every such workshop or factory shall be well and sufficiently lighted, heated and ventilated by ordinary, or, if necessary, by mechanical appliance, and shall provide for each person employed therein, no less than 250 cubic feet of air space in day time, and 400 cubic feet at night, and shall have suitable closet arrangements for each sex employed therein, as follows: Where there are ten or more persons, and three or more to the number of twenty, are of either sex, a separate and distinct water-closet, either inside the building, with adequate plumbing connections, or on the outside at least twenty feet from the building, shall be provided for each sex; when the number employed is more than twenty-five of either sex, there shall be provided an additional water-closet for such sex up to the number of fifty persons, and above that number in the same ratio, and all such closets shall be kept strictly and exclusively for the use of the employes and employer or employers of such workshop or factory; provided that where more than one room is used under the direction of one employer, all such rooms are to be regarded as one shop, or factory, and every such workshop or factory shall be kept in a clean and wholesome

condition, all stairways and the premises within a radius of thirty feet shall be kept clean, and closets shall be regularly disinfected and supplied with disinfectants, and the inspector of factories or his assistants may require all necessary changes or any process of cleaning, painting or whitewashing which he may deem essential to assure absolute freedom from obnoxious odor, filth, vermin, decaying matter or any condition liable to impair health or breed infectious or contagious diseases; he shall prevent the operation of such shops and factories that do not conform to the provisions of this act, and cause the arrest and prosecution of the person or persons operating the same. (Passed April 27, 1896; O. L. Vol. 92, pp. 317, 318; Bates' A. O. S. Vol. 2, p. 2432.)

(SECTION 4364-82) Sec. 3. [**Noncomplier debarred from work or contract.**] No person, for himself or for any other person, firm or corporation, shall give out work to or contract with any other person to perform such work necessary to make such goods mentioned in section one, after having received notice from the inspector of factories or his assistants, that said latter person has not complied with the provisions of section two of this act, which notice shall remain in force until said person has complied with this law, of which notice must be given to the employer by the inspector of factories or his assistants. (Passed April 27, 1896; O. L. Vol. 92, p. 318; Bates' A. O. S. Vol. 2, p. 2432.)

(SECTION 4364-83) Sec. 4. [**Record to be kept by employers.**] Every such person, firm or corporation heretofore mentioned shall obtain and keep a record of all persons to whom work is given out or contracted for, including their names and addresses, which record shall be opened to inspection of the state inspector of workshops and factories when called for. (Passed April 27, 1896; O. L. Vol. 92, p. 318; Bates' A. O. S. Vol. 2, p. 2432.)

(SECTION 4364-84) Sec. 5. [**Traffic in goods made in violation prohibited; what not included; by whom violations prosecuted.**] No person, firm or corporation shall receive, handle or convey to others, or sell, hold in stock or expose for sale any goods mentioned in section one, unless made under the sanitary conditions provided for and prescribed in this act; but this act shall not include the making of garments or other goods by any person for another by personal order, and when received for wear or use direct from the maker's hands, and all violations of the provisions of this act shall be prosecuted by the inspector with the advice and consent of the chief inspector of workshops and factories. (Passed April 27, 1896; O. L. Vol. 92, pp. 318, 319; Bates' A. O. S. Vol. 2, pp. 2432-33.)

(SECTION 4364-85) Sec. 6. [**Penalty for violation; disposition of fine; costs in prosecution.**] Any person, firm or corporation who shall violate any of the provisions of this act shall, upon conviction thereof, be fined in any sum not less than fifty dollars nor more than one hundred dollars for each offense, or imprisoned not less than thirty

nor more than sixty days or both, at the option of the court, such fine to be collected by the court in which conviction is had and turned over to the chief inspector of workshops and factories, and by him to be paid into the state treasury to be credited to the general revenue fund; and in all prosecutions brought by or under the direction of the inspector of workshops and factories for the violation of this act, he shall not be held to give security for costs, or adjudged to pay any costs, but in all cases where the accused be acquitted or is found to be indigent, the costs shall be paid out of the county treasury of the county in which proceedings are brought, the same as the costs in all other cases of misdemeanor. (Passed April 27, 1896; O. L. Vol. 92, p. 319; Bates' A. O. S. Vol. 2, page 2433.)

BLOWERS IN WORKSHOPS.

(SECTION 4364-86) Sec. 1. [**Blowers required in factory or workshop where dust-creating machinery is used; exemption.**] That all persons, companies or corporations operating any factory or workshop, where emery wheels or emery belts of any description are used, either solid emery, leather, leather covered, felt, canvass, linen, paper, cotton, or wheels or belts rolled or coated with emery or corundum or cotton wheels used as buffs shall provide the same with blowers, or similar apparatus, which shall be placed over, beside or under such wheels or belts in such a manner as to protect the person or persons using the same from the particles of the dust produced or caused thereby, and to carry away the dust arising from or thrown off by such wheels or belts while in operation, directly to the outside of the building, or to some receptacle place, so as to receive and confine such dust; provided, that grinding machines upon which water is used at the point of the grinding contact and small emery wheels that are used temporarily for tool grinding and small shops employing not more than one man at such work and do not create dust enough in the opinion of the inspector to be injurious to the operator, shall be exempt from the provisions of this act. (Passed April 21, 1898; O. L. Vol. 93, p. 155; Bates' A. O. S. Vol. 2, p. 2433.)

(SECTION 4364-87) Sec. 2. [**Operator's duty to provide apparatus; how wheels to be fitted.**] It shall be the duty of any person, company or corporation operating any such factory or workshop to provide or construct such appliances, apparatus, machinery or other things necessary to carry out the purpose of this act, as set forth in the preceding section, as follows: Each and every such wheel shall be fitted with a sheet or cast iron hood or hopper of such form so applied to such wheel or wheels that the dust or refuse therefrom will fall from such wheels, or will be thrown into such hood or hopper by centrifugal force and be carried off by the current of air into a suction pipe attached to same hood or hopper. (Passed April 21, 1898; O. L. Vol. 93, p. 155; Bates, A. O. S. Vol. 2, p. 2433.)

(SECTION 4364-88) Sec. 3. [**Branch suction pipes; main suction pipes.**] Each and every such wheel, six inches or less in diameter,

shall be provided with a three-inch suction pipe; wheels six inches to twenty-four inches in diameter with four-inch suction pipe; wheels from twenty-four inches to thirty-six inches in diameter with five-inch suction pipe; and all wheels larger in diameter than those stated above shall be provided each with a suction pipe not less than six inches in diameter. The suction pipe from each wheel, so specified, must be full size to the main trunk suction pipe and the main suction pipe to which smaller pipes are attached shall, in its diameter and capacity, be equal to the combined area of such smaller pipes attached to the same, and the discharge pipe from the exhaust fan, connected with such suction pipe or pipes, shall be as large, or larger, than the suction pipe. (Passed April 21, 1898; O. L. Vol. 93, pp. 155, 156; Bates' A. O. S. Vol. 2, pp. 2433-34.)

(SECTION 4364-89) Sec. 4. [**Fans or blowers; branch suction pipes to connect with main pipe; location of main pipe.**] It shall be the duty of any person, company or corporation operating any such factory or workshop to provide the necessary fans or blowers to be connected with such pipe or pipes, as set forth in this act, which shall be run at a rate of speed such as will produce a velocity of air in such suction or discharge pipes of at least nine thousand feet per minute to an equivalent suction or pressure of air equal to raising a column of water not less than five inches in a U-shaped tube. All branch pipes must enter the main trunk pipe at an angle of forty-five degrees or less; the main suction or trunk pipe shall be below the emery or buffing wheels, and as close to the same as possible, and to be either upon the floor or beneath the floor on which the machines are placed to which such wheels are attached. All bends, turns or elbows in such pipes must be made with easy, smooth surfaces, having a radius in the throat of not less than two diameters of the pipe on which they are connected. (Passed April 21, 1898; O. L. Vol. 93, p. 156; Bates' A. O. S. Vol. 2, p. 2434.)

(SECTION 4364-89a) Sec. 5. [**Duty of chief and district inspectors of workshops and factories; notification by chief inspector.**] It shall be the duty of the chief inspector of workshops and factories to cause his district inspectors to inspect such workshops and factories in this state having and using such machinery as is named in this act, as often as he may deem advisable, and the district inspector shall have entry to such workshops and factories at all times when directed to make such inspection, and shall report to the chief inspector such violations as he may find, and the chief inspector shall notify the person or persons, company or corporation operating such workshop or factory to comply with the provisions of this act within thirty days after date of issuing order, which notification shall be in writing and may be served by the district inspector or mailed to the last known address of such person, persons, company or corporation, which service shall be deemed sufficient notice for the purpose of this act. (Passed April 21, 1898; O. L. Vol. 93, p. 156; Bates' A. O. S. Vol. 2, p. 2434.)

(SECTION 4364-89b) Sec. 6. [**Penalty for non-compliance.**] Any person, or persons, company or corporation, or agent having charge of or the management of such workshop or factory, failing to comply with the provisions of this act, and with such orders for changes as may be issued by the chief inspector, within thirty days after the same has been issued, shall be deemed guilty of a misdemeanor, and upon conviction thereof before any court of competent jurisdiction, shall be fined not less than fifty dollars nor more than one hundred dollars for each offense or imprisoned in the county jail not less than thirty days, or both such fine and imprisonment, in the discretion of the court. (Passed April 21, 1898; O. L. Vol. 93, pp. 156, 157; Bates' A. O. S. Vol. 2, p. 2434.)

HIGH EXPLOSIVES.

MANUFACTURE, HANDLING AND STORAGE OF DYNAMITE, ETC.

SECTION 2573c-1. [**Inspector of manufacture, etc., of explosives; appointment, etc.**] That the chief state inspector of workshops and factories shall appoint, from among the district inspectors of workshops and factories whose appointments are now authorized by law, at least one inspector who shall be a skilled and experienced person, thoroughly conversant with the manufacture and use of powder, dynamite, nitro-glycerine, fuses or other explosives and their compounds, whose duty it shall be to inspect all the manufacturing establishments in the state of Ohio wherein the manufacture of powder, dynamite, nitro-glycerine, compounds, fuses or other explosives are manufactured, and all magazines or store-houses wherein such explosives are stored, and he shall personally inspect the process of manufacture, the handling and storage of such explosives, and may direct and order any changes or additions that he may deem necessary in or about such manufactories, magazines or store-houses for the safety of the employes and the public; and when on inspection it is found that any manufactory, magazine or store-houses mentioned herein is in such close proximity with any residence or dwelling as to cause accident in case of an explosion, the said inspector may cause the said explosives to be removed to a place of safety the distance to be calculated by the quantity and quality of the explosives so stored or manufactured, and the said inspector may, with the advice of the chief inspector, advise such rules and regulations as he may deem necessary, in addition to the provisions of the statutes now giving authority to the inspector of workshops and factories and his assistants, all of which shall be applicable to the places of manufacturing, sale and storage of explosives as named in this statute. (Passed April 12, 1893; O. L. Vol. 90, p. 164; Bates' A. O. S. Vol. 1, p. 1362.)

SECTION 2573c-2. [**Enforcement of act, etc.**] The said inspector of workshops and factories shall enforce the provisions of this act under the same conditions and penalty as applied in section 2573c of the Re-

vised Statutes. (Passed April 25, 1893; O. L. Vol. 90, p. 308; Bates' A. O. S. Vol. 1, p. 1362.)

SECTION 2573c-3. [**Additional salary of inspector of manufacture, handling and storage of explosives.**] Provided, however, that one district inspector, skilled, experienced, and thoroughly conversant with the manufacture of powder, dynamite, nitro-glycerine, fuses, and other explosives, and their compounds, and whose duty it is to personally inspect their manufacture, handling and storage, as provided in section 1 of an act entitled "An act to regulate the manufacture, sale and use of dynamite within the state of Ohio, so as to provide for the inspection of such and to protect the public from the dangers of explosion," as amended April 12, 1893, shall be entitled to, and be paid, a salary of eight hundred dollars per annum in addition to that named and provided for in said supplementary section 2573c. (Passed April 27, 1896; O. L. Vol. 92, p. 353; Bates' A. O. S. Vol. 1, p. 1362.)

PUBLIC BUILDINGS.

OPERA HOUSES, HALLS, ETC., USED FOR ASSEMBLAGE OF PEOPLE.

SECTION 2568. [**Examination of halls, etc., as to safety in case of fire.**] On application of the owner or person having control of an opera house, hall, theater, church, school-house, hospital, medical institute, asylum, or other buildings used for public assemblages, in any municipal corporation, the mayor, civil engineer, and chief engineer of the fire department, or if such corporation has no such engineer, the mayor and two members of council, shall carefully make a joint examination of such opera house, hall, theater, church, school-house, hospital, medical institute, asylum, or other building to ascertain the means provided thereat and therein for the speedy and safe egress of the persons that may at any time be there assembled, and the means provided for extinguishing a fire, at or in such place; provided, that when the assembly rooms of such church are situated upon the ground floor, with a sufficient number of low windows, in the opinion of the commission above provided for, to secure safe and easy means of escape in case of alarm, they shall grant the certificate mentioned in the next following section. (Passed January 11, 1893; O. L. Vol. 90, pp. 3, 4; Bates' A. O. S. Vol. 1, p. 1356-57.)

SECTION 2569. [**Certificate in such case.**] If, upon such examination, it is found that such opera house, hall, theater, church, school-house, or other building is abundantly provided with means for speedy and safe egress of the persons who may at any time be there assembled, and, if above the first floor, that it is provided therein with water, or other equally efficient agency, and proper means to apply it, so that any fire which may occur at such place can be immediately extinguished, the mayor, and persons so acting with him, or a majority of the three, shall issue to such owner or person having control as aforesaid, a certificate of the fact, which shall continue in force one year, unless sooner revoked

by council. (O. L. Vol. 62, p. 139; S. & B. R. S. Vol. 1, p. 666; Bates' A. O. S. Vol. 1, p. 1357.)

SECTION 2570. [Re-examination in case of change in building.] If any change or alteration is made in such building, the owner or person having charge of it shall notify the mayor of the fact, who shall cause to be made a re-examination in all respects like that provided for in the last section, and if upon such examination such owner or person having control, is entitled to such certificate as is mentioned in the last section, it shall be issued to him, with like effect. (O. L. Vol. 62, p. 139; R. S. Vol. 1, p. 667; Bates' A. O. S. Vol. 1, p. 1357.)

SECTION 2571. [Appeal of owner or person in control from refusal to issue certificate.] If any owner or person having control of such place, as aforesaid, shall feel himself aggrieved by the refusal of such officers, to issue any such certificate, he may appeal from the decision of the council, which shall appoint three disinterested persons to examine the premises, any two of whom may issue the certificate provided for in section two thousand five hundred and sixty-nine, and two thousand five hundred and seventy. (O. L. Vol. 62, p. 139; S. & B. R. S. Vol. 1, p. 667; Bates' A. O. S. Vol. 1, p. 1357.)

SECTION 2572. [Penalty against owner or person having control; fines for benefit of city or county; duty of mayor or prosecuting attorney.] Whoever, being the owner or having control as an officer, agent, or otherwise, of any opera house, hall, theater, church, school-house, college, academy, seminary, infirmary, sanitarium, children's home, hospital, medical institute, asylum, or other building used for the assemblage or betterment of people, in a municipal corporation, county or township in the state of Ohio, permits it to be used when any door affording exit therefrom is locked or barred, or opens inwardly; when the place is not provided with ample means for the safe and speedy egress of the persons who may be there assembled; when sufficient water and proper means to apply it, or other efficient means are not provided on each floor to extinguish any fire which may occur therein; or when the certificate provided for in section twenty-five hundred and sixty-nine or section twenty-five hundred and seventy, which certificate shall also apply to buildings mentioned in section twenty-five hundred and seventy-two, as the case may be, has not been issued, or is not in full force, shall be deemed guilty of a misdemeanor, and on conviction thereof before any court of competent jurisdiction shall be fined not more than five hundred (500) dollars, nor less than fifty (50) dollars, and ten (10) dollars additional for each day or night such building is permitted to be used after such conviction is had and until such changes, alterations or additions have been made sufficient to warrant the issuing of certificate by the chief inspector of workshops and factories; and such fines and costs shall be recovered in the name and for the use of the municipal corporation, if such building is located within the corporate limits, if not then for the

use of the county in which located and suit is brought; and it shall be the duty of the mayor, with the aid of the police, or the prosecuting attorney, with the aid of the sheriff, if such building is not located within a municipal corporation, to see that the provisions of this act are strictly enforced. (Passed March 9, 1898; O. L. Vol. 93, pp. 34, 35; Bates' A. O. S. Vol. 1, pp. 1357-58.)

SECTION 2572a. [Inspections and certificates dispensed with in certain cases; notices of refusal of certificate; requirements for issuance of certificate; prohibition of use of buildings.] That whenever any structure referred to in section 2572 shall have been inspected by the state inspector of workshops and factories, and such inspector shall have issued to the owner thereof or to his agent, a certificate that such structure is properly arranged for the safe and speedy egress of persons who may be assembled therein, and also properly provided with the means for the extinguishment of fire at or in such structures, as now required by law, then such certificate shall dispense with all other inspections and certificates required by law in regard to the safety of such structures as are mentioned in section twenty-five hundred and seventy-two; and in case such inspector shall find on inspection that such structure is not properly arranged for the safe and speedy egress of persons who may be there assembled, or not properly provided with means for the extinguishment of fire at or in such structure, as now required by law, or that such structure is such as to endanger the lives of the persons who may be there assembled, from fire or other cause, he shall notify the owner, officer or agent in charge of such structure and the mayor of the municipal corporation, if such structure is located therein, if not then the prosecuting attorney of the county wherein the same is located, in writing, of the fact that he refuses such certificate, specifying his reasons and the alterations, additions and appliances necessary to be made and furnished before a certificate will be issued; and no certificate required by law, in regard to the safety of such structure, shall be issued by the mayor or any officer or person under any provision of the law till the requirements of the foregoing notice are complied with to the satisfaction of the state inspector, and it shall be the duty of the mayor of any municipality, with the aid of the police, or the prosecuting attorney, with the aid of the sheriff, upon receiving such notification, to prohibit the use of such buildings for the assemblage of people until the necessary changes, alterations and additions have been made and the inspector's certificate has been issued. (Passed April 27, 1896; O. L. Vol. 92, p. 409; Bates' A. O. S. Vol. 1, p. 1358.)

SECTION 2572b. [When inspection to be made; inspector to have access to buildings.] It shall be the duty of the chief inspector of workshops and factories, or his district inspectors, to make inspections of such buildings as are provided for in sections 2568, 2569 and 2572 of the Revised Statutes of Ohio, as often as he may deem necessary, or upon the written demand of the agent or owner of such structure, or

upon the written request of five or more citizens of the municipal corporation, county or township wherein such structure is located, and the chief inspector or district inspectors shall have access to all such buildings at any time it may be deemed necessary to inspect same. (Passed March 9, 1898; O. L. Vol. 93, p. 35; Bates' A. O. S. Vol. 1, p. 1358.)

BETTER PROTECTION FOR PERSONS WHO USE STAIRWAYS.

(SECTION 4238-15) Sec. 1. [**Hand-railings for stairways in certain buildings.**] That all stairs or stairways for ingress or egress, to and from all tenement houses, apartments, manufactories, mills, shops, stores, churches, hotels, halls for public meetings, lecture rooms, restaurants, public library rooms, business offices of professional men and others doing business for or with the public, all public buildings and other rooms or places of public resort or use, whether for the transaction of business or social enjoyment, shall be provided by the owners thereof, or the directors, trustees, lessees, managers, controllers or proprietors of any of said buildings wherein said stairs or stairways are erected, and used for the purposes aforesaid, with a good substantial hand-rail extending from the top to the bottom of said stairs or stairways, and the same shall be firmly fastened by said owners, directors, trustees, lessees, managers, controllers or proprietors, to the wall or other support or partition at the side of such stairs or stairway most convenient for use, and such hand-rail shall be constructed or made of wood not less than one and one-half inches wide and two and one-half inches thick; or iron not less than one and one-half inches in diameter, and shall be put up and maintained along all the said stair and in all the said stairways in the said buildings now erected and in use, or which may hereafter be used for any of the purposes aforesaid, and in all such buildings hereafter constructed to be used for the purposes aforesaid. (Passed April 18, 1892; O. L. Vol. 89, pp. 373, 374; Bates' A. O. S. Vol. 2, p. 2375.)

(SECTION 4238-16) Sec. 2. [**Penalty for failure to provide hand-rails; liability for damages; chief inspector to enforce provisions.**] Any person or persons owning or having charge of such stairs or stairways, as directors, trustees, lessees, managers or proprietors of any of said buildings wherein said stairs are erected and used for the purposes aforesaid, and neglecting or refusing to provide said hand-railings, and put up and keep up the same in manner aforesaid, shall be deemed guilty of a misdemeanor, and on conviction thereof before any court of competent jurisdiction shall be fined in any sum not less than ten nor more than one hundred dollars, and shall be liable to any person injured for the want of such railing or railings for all injury to such person or damages resulting therefrom; and it shall be the duty of the chief inspector of workshops and factories, or district inspectors, to enforce the provisions of this act. (Passed April 7, 1898; O. L. Vol. 93, p. 88; Bates' A. O. S. Vol. 2, p. 2375-76.)

MISCELLANEOUS.

The acts placed under the head of "Miscellaneous," relating to buildings for public use, scaffolding and counter-floors for buildings under construction, obstructing aisles in theaters, manufacturing, storing and transporting nitro-glycerine, and limiting hours of labor on public works, do not come under the jurisdiction of the Department of Workshops and Factories, but so frequently letters are received relative to these laws that it was deemed advisable, for the sake of economy and to save time, to publish them in connection with the acts to be enforced by this department. — [CHIEF INSPECTOR.]

ERECTION OF BUILDINGS FOR PUBLIC USE.

(SECTION 4238-1) Sec. 1. [To prevent the erection of dangerous buildings.] That it shall be unlawful for any person, society, firm, agent, representative of any private or corporate authority or society, or any committee, commission, or board acting under any authority whatsoever, to erect or cause to be erected; or for any architect, engineer, builder, or other person to furnish any plan, description or specification for the purpose of erecting in the state of Ohio, any structure, room or place where persons are invited, expected, or permitted to assemble, for the purpose of entertainment, judgment, amusement, instruction, betterment, treatment, or care; or to make any addition to or alteration therein, which shall, in construction, arrangement, or means of egress, be dangerous to the health or lives of persons so assembled. (Passed April 15, 1889; O. L. Vol. 86, p. 381; S. & B. R. S. Vol. 2, p. 2381; Bates' A. O. S. Vol. 2, p. 2371.)

(SECTION 4238-2) Sec. 2. [Capacity of stairways, approaches, doorways, etc.; floors, roofs, walls, piers, pillars, arches, etc.; fire-escapes, ventilating, lighting and heating apparatus.] In every such structure, room or place, capable of containing fifty or more persons, the stairways and approaches thereto, and all doorways and escapes therefrom, in their aggregate width shall be of sufficient capacity to allow any audience which can be accommodated therein to escape therefrom in four minutes, moving at a rate of two feet per second, and allowing four square feet of floor space to each person, then adding for hindrance, two feet to the width of each opening, passage or stairway. The doors from the same shall open outward, but no such room or place, unless the structure be fire-proof, which is over six feet from the surface of the

lot, shall have less than two doors, stairways or exits. The floors of such structures, and all hallways, stairways, corridors or balconies and galleries therein or thereto, shall be capable of sustaining a live load of one hundred pounds per square foot, with a safety factor of five. All supports for floors or other parts of such structures, shall be fully capable of sustaining the aggregate loads and pressures above provided for in addition to any rythmical or vibrating motion which may be caused in the use of such structure. The roof or covering of such building shall be capable of sustaining a live load of thirty pounds of vertical pressure and a horizontal wind pressure of forty pounds per square foot, with a safety factor of five. When walls supporting floors are of common brick work the minimum of thickness and the maximum of height, supposing the length to equal the height, shall be, where no openings occur, 9-inch wall, 10 feet, used inside only; 13-inch wall, 20 feet; 17-inch wall, 30 feet; 21-inch wall, 40 feet; 26-inch wall, 50 feet; 30-inch wall, 60 feet, but when thinner walls stand upon thicker walls, the total height shall not exceed the one above given. Walls of hard brick, laid in cement, may be increased fifty per cent. above these dimensions. When walls between supports are of greater or of less strength than the height, the length may be increased two feet for each foot the height is reduced; or reduced one-half foot for each foot the height is increased, from the dimensions given in this section. When there are buttresses or pilasters extending to the foundations and projecting from the wall, the thickness of the wall may be reduced by one-half the depth of such projections, provided they occupy at least one-tenth of the surface of the wall, and the thickness of the intervening walls, considered separately, shall not be less than what has been given in this section; provided, however, that when any wall is strengthened by firm anchoring of girders, floors, or roofs, such anchors not being more than twelve times the thickness of the wall from each other, either horizontally or vertically, the surface of such wall may be doubled. The thickness of level-bedded stone walls to be the same as brick. For rough stone not in courses, add twenty-five per cent. to the thickness for brick. Where openings occur, thicken the walls by their ratio of surface. All piers, pillars and columns shall be capable of sustaining the aggregate live load given and the weight of the building. All arches must contain the line of pressure within the middle one-third of the voussoirs. The greatest pressure allowed per square foot of good brick work shall be five tons; for work of hard brick, laid in first-class cement, ten tons; for unbedded sandstone masonry, four tons; for second-class masonry, eight tons; for first-class masonry, twelve tons. Piers, columns, pillars and all marble, granite and limestone work, not over twenty per cent. of the crushing weight. Every such building, place or room, when above the second floor, shall be provided with at least one fire-escape, which shall be so placed as to be easily accessible, so marked that it may be generally understood, so constructed as to lead

directly to the open air, and so designed as not to be dangerous for women and children, and shall be sufficiently inclosed to protect persons therefrom from fire below, i. e., it shall be placed against the dead wall and be inclosed on three sides, and in buildings where two or more assemblages occur, as in school houses, each room above the second floor must have an exit leading to a fire-escape. No fire-escape shall be less than twenty-four inches in clear width, with an additional one-fourth inch in width for each person [over fifty] to be accommodated thereby. The ventilating system or machinery shall be capable of changing the air in such room every thirty minutes; and all lavatories and water-closet places shall have double the above given capacity for ventilation; and all conveniences used in such buildings shall have soil and waste-pipes fully ventilated to the outside air. The warming and lighting apparatus shall be arranged and constructed so as to be safe and against explosion or fire. All smoke flues or pipes, unless lined with terra cotta or other fire-proof material of permanent character, shall not be nearer than eight inches to any combustible material, and not nearer than four inches in any case, nor shall any smoke flue, pipe or chamber of metal being or passing under woodwork, be nearer thereto than twice the diameter of such pipe, flue or chamber, unless protected with suitable fire-proof guard with open space above. Every warm air flue of metal shall be at least one-half inch from all woodwork, and also completely covered with asbestos or other fire-proof wrapping, with circulation of air between it and the wood, and no wood shall be nearer than four inches to any such flue in brick work. (Passed April 15, 1889; O. L. Vol. 86, pp. 381-383; S. & B. R. S. Vol. 2, pp. 2381-82; Bates' A. O. S. Vol. 2, pp. 2371-73.)

(SECTION 4238-3) Sec. 3. [Exceptions as to application of this act.] This act shall not apply to cities of the first class, where the construction of buildings is regulated by statute under the direction of a building inspector; nor shall it be construed so as to interfere with existing laws relating to the inspection of buildings, but no certificate as now provided by law, shall be issued for buildings hereafter erected, or alterations hereafter made (except in such cities of the first class), unless they conform to the requirements of this act. (Passed April 15, 1889; O. L. Vol. 86, p. 383; S. & B. R. S. Vol. 2, pp. 2382, 2383; Bates' A. O. S., Vol. 2, p. 2373.)

(SECTION 4238-4) Sec. 4. [Penalty for violation of this act.] Any person who violates any of the requirements of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than *one hundred* nor more than *one thousand* dollars, or be imprisoned in the county jail not less than ten nor more than sixty days, or both, at the discretion of the court, and shall also be liable to any person injured by reason of his violation of the requirements of this act, and shall be also liable for criminal prosecution for loss of life.

(Passed April 15, 1889; O. L. Vol. 86, p. 383; S. & B. R. S. Vol. 2, p. 2383; Bates' A. O. S., Vol. 2, p. 2373.)

(SECTION 4238-5) Sec. 5. [**Prosecuting attorney to enforce provisions of act.**] It shall be the duty of the prosecuting attorneys to see that this law is enforced in their respective counties, and for each conviction or violation thereof they shall be entitled to a fee of *twenty-five* dollars, and such other sums as may be allowed by the board of county commissioners. (Passed April 15, 1889; O. L. Vol. 86, p. 383; S. & B. R. S. Vol. 2, p. 2383; Bates' A. O. S. Vol. 2, p. 2373.)

SECTION 6. This act shall take effect and be in force within sixty days after its passage. (Passed April 15, 1889; O. L. Vol. 86, p. 383; S. & B. R. S. Vol. 2, p. 2383; Bates' A. O. S. Vol. 2, p. 2373.)

SCAFFOLDING FOR BUILDINGS, ETC.

SECTION 4238-18. Sec. 1. [**Scaffolding and apparatus to be kept safe for employes.**] Any person or corporation employing or directing another to do or perform any labor in the erection, repairing, altering or painting any house, building or structure within this state, who shall knowingly or negligently furnish or erect or cause to be furnished for erection for and in the performance of said labor, such unsuitable or improper scaffolding, hoists, stays, ladders or other mechanical contrivances as will not give proper protection to the life and limb of any person so (employed or) engaged, or if any such scaffolding or staging swung or suspended from an overhead support or supports shall be more than twenty feet from the ground or floor, the same shall be deemed unsuitable and improper and as not giving proper protection to the life and limb of any person employed or engaged thereon, unless such scaffolding or staging shall, when the same is in use, have a safety-rail rising at least thirty-four inches above the floor or main portion of such scaffolding or staging, and extending along the outside thereof, and properly attached thereto, and unless such scaffolding or staging shall be provided with braces so as to sustain the weight of a man's body leaning against it, and prevent the scaffold or staging from swaying from the building or structure. (Passed April 18, 1892; O. L. Vol. 89, p. 380; Bates' A. O. S. Vol. 2, p. 2376.)

SECTION 4238-19. Sec. 2. [**Penalty.**] That any person or corporation by any of its officers who shall violate any of the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding five hundred dollars, or by imprisonment in the county jail not to exceed three months, or both, at the discretion of the court. (Passed April 18, 1892; O. L. Vol. 89, p. 380; Bates' A. O. S. Vol. 2, p. 2376.)

COUNTER-FLOORS FOR BUILDINGS UNDER CONSTRUCTION

SECTION 4238-20. [**Counter floors for safety of operators in constructing edifice; penalty.**] That whoever being the owner, lessee, agent, factor, architect or contractor, being engaged in and having supervision and charge of the building, erection or construction of any block, building or structure, who shall neglect or refuse to place or have placed upon the joists of each and every story of such block, building or structure, as soon as joists are in position, counter floors of such quality and strength as to render perfectly safe the going to and fro thereon of all mechanics, laborers and other persons engaged upon the work of construction or in supervising the same, or in the building or placing of materials therefor, shall be deemed guilty of a misdemeanor and upon conviction thereof in any court of competent jurisdiction shall be fined in any sum not less than \$25 nor more than \$200, and each and every day that such person, contractor, agent, factor, or architect shall so neglect or refuse to have such floors so placed as aforesaid, after written notice by the building inspector or from any person whose life or personal safety may be endangered by such neglect or refusal, shall be held and considered a separate offense severally liable to the penalties aforesaid. (Passed April 29, 1902; O. L. Vol. 95, p. 321.)

OBSTRUCTING AISLES IN THEATERS, ETC.

SECTION 7010. [**Penalty for using hall, theater, etc., without certificate; unlawful to obstruct aisles.**] Whoever being the owner of a hall, theater, opera house, church or school-house, having the control thereof, individually or by virtue of his office as agent of any society or corporation, permits the same to be used for the purpose of public assemblies or schools without having the certificate required by law that the same is provided with the means of speedy and safe ingress and egress, shall be fined not more than one thousand dollars for each and every such offense; nor shall it be lawful for any owner, lessee or proprietor of a hall, theater or opera house to block up the aisles and hallways therein by placing chairs, stools or permitting them to be occupied by persons standing therein, or by any obstructions whatever to the danger of those occupying sittings therein by cutting off an escape and easy egress therefrom, under the penalty as above enumerated in this section for not providing means for escape in case of fire or other casualties. (Passed March 1, 1883; O. L. Vol. 80, p. 28; A. O. S. Vol. 2, pp. 3382-83.)

NITRO-GLYCERINE.

SECTION 6953. [**Manufacturing, storing and transporting nitro-glycerine.**] It shall be unlawful for any person, firm or corporation,

to manufacture the substance or material known as nitro-glycerine, or any compound thereof, or to store the same in quantities exceeding one hundred pounds, within the limits of any municipal corporation, or within eighty rods of any occupied dwelling or public building, or without giving bond as hereinafter provided to pay any damage caused by the explosion of said substance. Within thirty days after the passage of this act, any and all persons, firms or corporations heretofore engaged in the manufacture or storage of said substance, in any county in this state, and all persons, firms or corporations hereafter engaging in such manufacture or storage, shall give bond in the sum of five thousand dollars, with good and sufficient surety, to the county commissioners of such county, with such surety or sureties as shall be approved by such county commissioners, conditioned for the payment of all damages that may be caused to persons or property by any explosion of any of said substance. And it shall be unlawful for any person, firm or corporation to transport or carry said substance in any package not having written or printed upon two sides thereof, in plain and distinct letters, the words "nitro-glycerine — dangerous," or in any vehicle or water-craft upon which any passenger is, at the same time being conveyed, or in any vehicle upon the two sides and rear end of which there shall not have been printed, in plain and distinct letters, large enough to occupy a space two inches wide by eighteen inches long, the words "nitro-glycerine — dangerous." And anyone convicted of a violation of this section, either as principal or servant, agent or officer of such person, firm or corporation, shall be fined not more than one thousand dollars, or imprisoned not more than three months, or both. (Passed April 16, 1900; O. L. Vol. 94, p. 296.)

SECTION 2. That said section 6953, passed May 1st 1871, be and the same is hereby repealed.

LIMITING HOURS OF LABOR ON PUBLIC WORKS.

SECTION 1. [What shall constitute a day's labor upon public works; unlawful for officer or person in charge of work to permit or require workmen to labor more than eight hours; exceptions.] The service of all laborers, workmen and mechanics employed upon any public works of, or work done for the state of Ohio; or for any political subdivision thereof, whether said work is done by contract or otherwise, shall be, and is hereby limited, and restricted to eight hours in any one calendar day; and it shall be unlawful for any officer of the state or of any political division thereof, or any person acting for or on behalf thereof, or any contractor, or sub-contractor for any part of any public works of, or work done for such state, or political subdivision thereof, or any person, corporation, or association whose duty it shall be to employ or to direct and control the services of such laborers, workmen or mechanics, or who has in fact the direction or control of the services of such laborers, workmen or mechanics

to require or permit them or any of them to labor more than eight hours in any one calendar day, except in cases of extraordinary emergency caused by fire, flood [flood] or danger to life and property, and except to work upon public, military or naval works or defenses in time of war, and except in cases of employment of labor in agricultural pursuits. (Passed April 16, 1900; O. L. Vol. 94, p. 357.)

SECTION 2. [Contracts for public work shall contain eight hour provision; shall stipulate penalty for violations by contractor.] Each and every contract to which the state of Ohio, or any political subdivision thereof is a party, and every contract made for, or on behalf of the said state or any subdivision thereof, which contract may involve the employment of laborers, workmen or mechanics shall contain a stipulation that no laborer, workman or mechanic in the employ of the contractor, or any sub-contractor doing or contracting to do any part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one calendar day except in cases of extraordinary emergency caused by fire, flood or danger to life or property and except to work upon public, military or naval work, or defenses in time of war, and except in cases of employment of labor in agricultural pursuits, and each and every [such] contract shall stipulate a penalty for such violation of the stipulation directed by this act of ten dollars for each laborer, workman or mechanic, for each and every calendar day in which he shall labor more than eight hours, and the inspector or officer, or person whose duty it shall be to see that the provisions of any such contract are complied with, shall report to the proper officer of such state, or political subdivision thereof, all violations of the stipulation in this act, provided for in each and every such contract, and the amount of the penalties stipulated in any such contract shall be withheld by the officer or person whose duty it shall be to pay the moneys due under such contract, whether the violations for which such penalties were imposed by the contractor, his agents, or employes, or any sub-contractor, his agents, or employes, no person on behalf of the state of Ohio, or any political subdivision thereof, shall rebate or permit any penalty imposed under such [any] stipulation herein provided for, unless upon a finding which he shall make up and certify that such penalty was imposed by reason of an error of fact. Nothing in this act shall be construed to authorize the collection of said penalty from the state, or any political subdivision thereof. (Passed April 16, 1900; O. L. Vol. 94, pp. 357-58.)

SECTION 3. [Penalty.] Any officer of the state of Ohio, or of any political subdivision thereof, or any person acting for, or on behalf thereof, who shall violate the provision of this act, shall be deemed guilty of a misdemeanor, and be subject to a fine or imprisonment, or both, at the discretion of the court, the fine not to exceed five hundred

dollars, nor the imprisonment more than one year. (Passed April 16, 1900; O. L. Vol. 94, p. 358.)

SECTION 4. All acts and parts of acts inconsistent with this act in so far as they are consistent are hereby repealed.

SECTION 5. This act shall take effect and be in force from and after its passage.

EMPLOYERS OF WORKMEN LIABLE IN DAMAGES.

SECTION 1. [Employers' liability for personal injury to employe notwithstanding negligence of fellow servant.] An employer shall be responsible in damages for personal injury caused to an employe, who is himself in the exercise of due care and diligence at the time, by reason of any defect in the condition of the machinery or appliances connected with or used in the business of the employer, which arose from, or had not been discovered or remedied owing to the negligence of the employer, or of any person in the service of the employer, entrusted by him with the duty of inspection, repair, or of seeing that the machinery or appliances were in proper condition. Passed April 4, 1902; O. L. Vol. 95, p. 114.)

UNLAWFUL TO PREVENT EMPLOYEES FROM JOINING LABOR ORGANIZATIONS.

(SECTION 4364-68) Sec. 1. [Preventing employe from joining labor organizations; penalty.] It shall be unlawful for any individual, or member of any firm, or agent, officer or employe of any company or corporation to prevent employes from forming, joining and belonging to any lawful labor organization, and any such individual, member, agent, officer or employe that coerces or attempts to coerce employes, by discharging or threatening to discharge from their employ or the employ of any firm, company or corporation, because of their connection with such lawful labor organization, shall be guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction shall be fined in any sum not exceeding one hundred dollars or imprisoned for not more than six months, or both, in the discretion of the court. (Passed April 14, 1892; O. L. Vol. 89, p. 269; Bates' A. O. S. Vol. 2, p. 2429.)



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